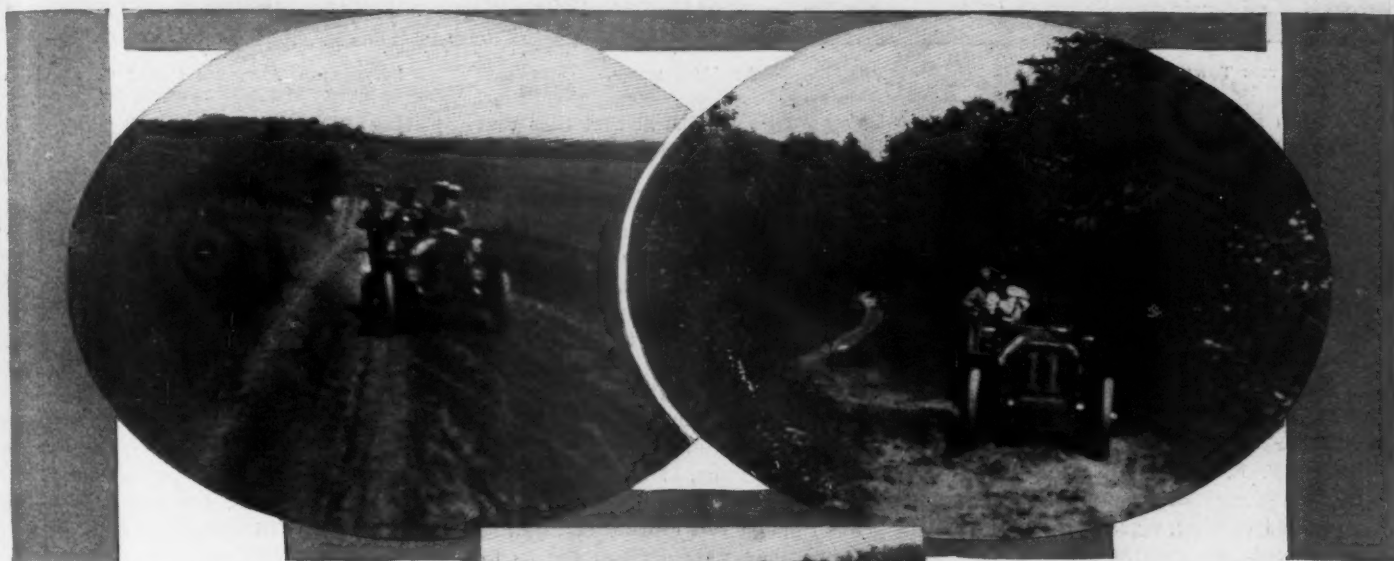


# MOTOR AGE

## HALF OF BIG TOUR'S PERFECT SCORES GONE



ON THE WAY TO FORT DODGE

COUNCIL BLUFFS, Ia., July 21—Special telegram—Tonight, 8 of the 15 running days of the Glidden tour are over; more than half of the tour, according to days, is done. According to mileage, though, it is not half over yet, because of the 2,640 miles to be gone over, only 1,289.6 have been traveled.

Of the thirty cars that left Detroit on July 1 in the contest for the Glidden, Hower, and Detroit trophies, but fifteen are tonight running with perfect scores, the other fifteen having been penalized. Thirteen started in the Detroit trophy run and two of them are perfect; fourteen started in the Hower trophy contest and only five of them have their perfect scores intact tonight.

### Perfect-Score Brigade

The Glidden perfect scores are: No. 1, Premier, W. Jay; No. 2, Premier, H. Hammond; No. 5, Marmon, H. C. Marmon; No. 6, Maxwell, E. G. Gager; No. 8, Pierce, F. S. Dey; No. 9, Pierce, W. Winchester; No. 11, Thomas, G. G. Buse; No. 14, White, H. N. Searles.

The five perfect score cars in the Hower ranks are: No. 101, Moline, J. A. Wicke; No. 105, Chalmers, Detroit, J. Mackesky; No. 108, Pierce, J. S. Williams; No. 109, Pierce, C. Schofield; No. 114, Lexington, J. C. Moore.



SHIMP RECOVERS THE TRAIL

Perfect scores in the Detroit trophy class are: No. 51, Simplex, W. A. Woods; No. 52, Chalmers-Detroit, J. Bemp.

Today's run was a particularly hard one on cars because eight were penalized, the greatest number to receive a penalty on any day since the tour began. This big penalty list was not due to the conditions of the roads, but the variety of causes

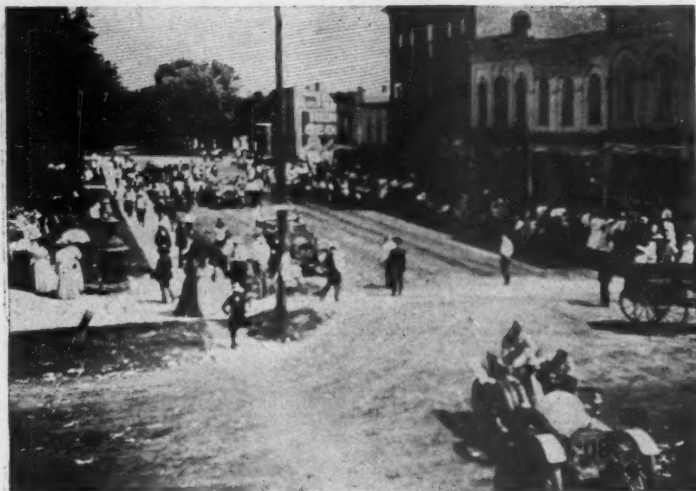
BUSE'S THOMAS ON IOWA SOIL

that have been at work on several of the cars for the last few days, but only exhibited themselves today. Three Glidden cars lost their perfect scores: namely, No. 4 Marmon, driven by Frank Wing, due to gasoline pipe troubles; No. 7 Jewell, wheel flange troubles, and No. 10 Glide, which got off the road into a swamp and had the steering knuckle broken when the car was being helped out by a railroad engine.

In the Detroit trophy class No. 53 Premier, driven by C. Waltman, had gasoline feed pipe troubles, and lost points. In the Hower ranks two Molines lost perfect scores; No. 100, driven by A. Y. Bartholemew, having to take a piece of metal off its timing gear, and No. 102 having to replace a cap screw in the intake water pipe flange where the pipes unite with the water jacket. This brought the total of perfect scores surrendered up to six, which is about the heaviest ever recorded on 1 day of a Glidden.

### Penalties Not Fixed

No. 111, Jewell runabout, was penalized 8.4 points for tightening some bolts in a wheel hub. No. 102 Moline's penalty was set at 30.3, being for time replacing the cap screw in the water pipe flange. No. 3, Chalmers-Detroit, which had connecting rod bearing trouble yesterday, has suffered in this respect today and its



GOING INTO THE TOWN



INTERESTED TOWSMEN GREET GLIDDENITES

—AT MANKATO—

penalty has not been announced. No. 10, Glide, got off the road with two wheels and sank into a morass. A team was unable to extract the car and aid was sought from a nearby freight engine and a long rope. The engine brought the car out too quickly and a steering knuckle was broken. The committee put the penalty at 1.6 points.

No. 7, Jewell, will receive 16 points for tightening bolts and nuts in a front wheel flange, 15.8 of the points being for the time and .2 for material. No. 4 Marmon, driven by F. E. Wing, lost 8 points because of a flange on the gasoline pipe breaking and causing a gasoline leak. It took three men 35 minutes each to make the repairs. The trouble with No. 53 Premier, driven by C. Waltman, was due also to gasoline troubles. The gasoline pipe had rubbed against the mud apron and worn a hole in it. To effect a repair it was necessary to cut a little rubber tubing from the gas pipe to the headlights and to fit over the gasoline pipe.

### Eighth Day of Tour

#### EIGHTH DAY

Fort Dodge to Council Bluffs, 186 miles

Class A—Time, 9 hours 48 minutes

Class B—Time, 10 hours 8 minutes

Class C—Time, 10 hours 28 minutes

Class D—Time, 10 hours 48 minutes

Roads dry; weather hot

Council Bluffs, Ia., July 21—Special telegram.—Today's run from Fort Dodge here has been a pleasant disappointment. For 3 days, the reports of heavy rains in this part of Iowa, and washed-away bridges, have intimidated the tourists, so everybody expected a big list of penalties. As it is, however, the roads have been dry, cars have been arriving an hour in advance of their 20-mile-an-hour schedule, and not a bit of bad road was encountered, in fact, were all of the rough bits of road placed in a line they would not extend 5 miles. But the roads were bad and the heavy rains fell, but that was a week ago.

So heavy were the rains at that time that for miles the entire farm lands in the valley of the Boyer river were inundated and the results of the baptism are everywhere apparent and as a result acres of the crop in this valley will never be harvested.

The good roads of today have been due to two causes: namely, the continued dry and hot weather for the last week and secondly, the phenomenal work that has been done by the different motor car clubs along the road. The first example of the good work in smoothing and leveling the roads came near Dana, 37 miles out, where green country is entered; for 35 miles the route lies through this country and during that stretch they were perfect, thanks to the self-sacrifice of Henry Haag, cashier of the bank in Jefferson, who, out of his own pocket paid for using the King drag on the 35 miles within the county. Cashier Haag, in addition to scraping the road surface, had all of the rough approaches to the bridges filled in.

#### Good Work By Club

Particularly necessary work was done by the Denison Motor Club, which consisted in

placing 100 feet or more of plank road at the outskirts of the town through a stretch on which water was 3 feet deep a week ago. The plank work made a good job of it. The Council Bluffs Automobile Club has been energetic in getting the roads in good shape for the tourists and have conditioned them between here and Missouri Valley, a distance of 27 miles. Several bridges have been rebuilt and all the deep holes and ruts leveled.

The roads in this country are gravel, an unexpected condition for Iowa, but due to the numerous gravel deposits throughout the country. In all, the county has 300 miles of improved gravel road, and as a result its motor car population is particularly high, there being 100 cars in the county, with a population of 16,000, or one car for every 160 people. In Jefferson, located in the center of the county, a town of 3,000 people, seventy cars are owned, fifty of which have been sold this year. When the tour passed through today, thirty-three cars were on the street, there being eight Maxwells, six Fords, five Mitchells, five Buicks, four Reos, three Auburns, one Mason.

#### Road Conditions of Day

Before starting from Fort Dodge this morning it was expected that today would be another run through the dustless gumbo district of Iowa, but this proved different. Gumbo ruled supreme for exactly 32 miles, to Dana but then it was bade adieu and was not seen any more. For the first 30 miles out Iowa is as flat as a floor, much like the gumbo districts of yesterday, but once Dana is reached, the rolling country begins and from there to Council Bluffs there is not a mile of level roads, but instead rolling land, breaking into big hills, after Glidden, 72 miles out, is passed. At Carroll, 80 miles out, the hills are good testers of cars, and from there in the road is best described as being rolling and hilly.

Because of the heavy rains of last week three detours from the schedule route was necessary, which brought the schedule mileage of 185 up to 196. The first detour was out of Fort Dodge, the second was be-



WOODS IN AMERICAN SIMPLEX



tween Carroll and West Side, and the third in the vicinity of Vail. With the exception of the first 3 miles of gumbo and 35 miles of gravel today's roads can be described as good direct roads, wide enough for miles for two cars to travel abreast, and in the majority of places sufficiently wide for two cars to pass at any speed. In this respect they were surprised.

#### Fine Agricultural Country

The 200 miles of Iowa passed through is superior from an agricultural point of view, to that of yesterday. From Denison to Missouri Valley the road follows the valley of the Boyer river valley, ranging from 1 to 3 miles in width. The road for miles follows the right of way from the Illinois Central and the Chicago and Northwestern railroads. The valley is a corn land from side to side. On no other day since the start of the tour have so many motor cars been observed in the small towns and cities along the road and at the homes of farmers. By actual count, before the outskirts of Council Bluffs were reached, ninety-five cars, of different makes, were counted. Jefferson led with thirty-three, Carroll had twelve, Gowrie ten, Grand Junction eight, West Side, Denison and Vail three each and Logan, Paton and many other points two each.

At one point seven were lined up in front of the big field of hay that was being cut. Not so many motor buggies as had been anticipated were met, the total number of the vehicles for the day being four. Of the ninety-five cars seen, the Ford and Buick tied for first place, with twelve each and there were noted six Reos,



CHALMERS CREW QUIETS UNRULY TEAM

four Maxwells, three each of Overland, Rambler, Moline, Mason, Mitchell and Carter cars. Only three high-priced cars were seen on the day's run, this being a Peerless at Grand Junction, a Packard met on the road and a Studebaker Forty. Other makes represented among the cars noted along the way were Chalmers-Detroit, Holman, Schacht, Stoddard-Dayton, Cardillac, E.-M.-F. and Jackson.

#### Green County Prosperous

From a standpoint of selling cars the greatest object lesson of today was the large number of cars owned in Green coun-

ty, in which there are good gravel roads on which cars can be run the year round. Selling fifty cars in a town of 3,000 population in 1 year is a good record and is largely due to the good roads in the surrounding counties.

Council Bluffs is a live motor car district, though considerably overshadowed by Omaha, on the opposite side of the river, as Council Bluffs has a population of 32,000 and Omaha of 150,000. Council Bluffs has a club of fifty-nine members, of which Dr. D. MacRae is the president and Charles Hannah secretary, both of whom were on hand to greet the tourists on their arrival at the Grand hotel this evening. Over twenty-one makes of cars are sold here, and combining Omaha with Council Bluffs practically every car made in the country has direct or indirect representation.

Council Bluffs realized that the tourists, after leaving here tomorrow morning, will spend practically 3 days on the plains, without such luxuries as baths and hotels, consequently their entertainment included a run by motor car to Lake Manawa, 4 miles out, where good use will be made of the bathing beach. On their arrival at the Parking station in front of the Grand hotel, each tourist was handed an envelope containing a program, which included the reception at the Elk's Club on arrival, band concert in Bayliss park, excursion to Lake Manawa, dinner at the Grand hotel and fireworks display from Fairmount park. Tickets of admittance were also presented to the club houses of the Elks, the Council Bluffs Rowing Association, and the Council Bluffs Fish and Game Club.

### DAY BY DAY PROGRESS OF CARS CONTESTING IN THE SIXTH ANNUAL GLIDDEN TOUR

#### GLIDDEN TROPHY CARS

No.	Car	Driver	No. of Cys.	Motor	1st day	2d day	3d day	4th day	5th day	6th day	7th day	8th day	9th day	10th day	11th day	12th day	13th day	14th day	15th day	Total to date
1	Premier.....	Webb Jay.....	4	4 1/2	5 1/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Premier.....	H. Hammond.....	4	4 1/2	5 1/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Chalmers-Detroit.....	Wm. Bolger.....	4	5 1/2	4 1/2	40	1	4	0	0	1	204	0	0	0	0	0	0	0	0
4	Marmon.....	F. E. Wing.....	4	4 1/2	4 1/2	32	0	0	0	0	0	0	8	0	0	0	0	0	0	8
5	Marmon.....	H. C. Marmon.....	4	4 1/2	4 1/2	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Maxwell.....	E. G. Gager.....	4	4 1/2	4 1/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Jewell.....	O. P. Bernhart.....	4	4 1/2	5	0	0	0	0	0	0	0	16	0	0	0	0	0	0	16
8	Pierce-Arrow.....	F. S. Dey.....	6	4 1/2	4 1/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Pierce-Arrow.....	W. Winchester.....	6	4 1/2	4 1/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Glide.....	A. Bartholomew.....	4	4 1/2	5	0	0	0	0	0	0	0	1.6	0	0	0	0	0	0	1.6
11	Thomas.....	G. G. Buse, Jr.....	6	5 1/2	5 1/2	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Midland.....	E. O. Hayes.....	4	4 1/2	5 1/2	0	0	0	3.7	0	0	0	0	0	0	0	0	0	0	4.3
14	White.....	H. N. Searles.....	2	3x4 1/2	5x4 1/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

\*Steam

#### DETROIT TROPHY CARS

51	American Simplex.....	W. A. Woods.....	4	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	Chalmers-Detroit.....	Jean Bamb.....	4	5	4 1/2	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	Premier.....	C. Waltman.....	4	4 1/2	5 1/2	0	0	0	0	0	0	0	8	0	0	0	0	0	0	8

#### HOWER TROPHY CARS

100	Moline.....	C. H. Van Dervoort.....	4	4 1/2	5	0	0	0	0	0	0	0	30.3	0	0	0	0	0	0	30.3
101	Moline.....	J. A. Wicke.....	4	4 1/2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	Moline.....	W. S. Gregory.....	4	4 1/2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	Brush.....	F. A. Trinkle.....	1	4	4 1/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	Brush.....	D. B. Huss.....	1	4	4 1/2	40.8	149.3	423.6	343.9	294	2.2	1000	Withdra wn.	Cont'd as non-contesta nt.	Cont'd as non-contesta nt.	Cont'd as non-contesta nt.	Cont'd as non-contesta nt.	Cont'd as non-contesta nt.	Cont'd as non-contesta nt.	1005.2
105	Chalmers-Detroit.....	J. Mackesky.....	4	5	4 1/2	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	Hupmobile.....	F. Steinman.....	4	3 1/2	3 1/2	16.9	0	0	0	358	1000	Withdra wn.	Cont'inue s as non-contesta nt.	Cont'inue s as non-contesta nt.	Cont'inue s as non-contesta nt.	Cont'inue s as non-contesta nt.	Cont'inue s as non-contesta nt.	Cont'inue s as non-contesta nt.	Cont'inue s as non-contesta nt.	1358
107	Maxwell.....	C. E. Goldthwaite.....	4	4 1/2	4 1/2	0	0	0	0	2.6	0	0	0	0	0	0	0	0	0	2.6
108	Pierce-Arrow.....	J. S. Williams.....	6	4	4 1/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	Pierce-Arrow.....	C. Schofield.....	6	4	4 1/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	McIntyre.....	F. Goodwin.....	2	4 1/2	4 1/2	29	423.7	1000	Withdra wn.	0	0	0	0	0	0	0	0	0	0	1452.7
111	Jewell.....	J. Shimp.....	4	4 1/2	5	0	0	0	0	9	6	5.8	0	8.4	0	0	0	0	0	29.2
112	Mason.....	R. Snyder.....	2	5	5	20	0	0	0	4.3	0	0	0	0	0	0	0	0	0	2.4
114	Lexington.....	J. C. Moore.....	4	4 1/2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Penalized, but figures not given out

# MADISON TO LA CROSSE EVENTFUL JOURNEY

## FOURTH DAY

Madison to La Crosse, 154.4 Miles  
 Class A—Time, 7 hours 42 minutes  
 Class B—Time, 7 hours 57 minutes  
 Class C—Time, 8 hours 12 minutes  
 Class D—Time, 8 hours 27 minutes  
 Class E—Time, 8 hours 42 minutes  
 Average speed Class A, 20 miles per hour  
 Roads dry and dusty, weather hot  
 No. 104 Brush, 343.9 points penalty  
 No. 106 Hupmobile, 385 points penalty  
 No. 107 Maxwell, 2.6 points penalty  
 No. 112 Mason, 2.4 points penalty  
 No. 12 Midland, 3.7 points penalty  
 No. 111 Jewell, 9 points penalty

**L**A CROSSE, Wis., July 15—Man is doomed to disappointment and in the course of all previous Glidden tours there has come a day when, although the sun shone in its gayest splendor, although Mother Earth clad in her choicest green made pleasure on every hillside and sleeping valley, and although spirits ran high and "All's well" rang along the line, yet the frost fell, hopes withered and the penalties came. This has been a calamity day for the 1909 Glidden tour, no fewer than six cars receiving penalties and four of those being machines with clean scores.

The unexpected came in the latter half of today's trip of 154.4 miles. Out of Madison everything went well until past Baraboo, 42 miles out, when some of the looked for sand and water breakers began. But the real Waterloo did not begin until almost a century had been completed and the proximity of what is known in Wisconsin as the tunnels was reached. The tunnels are three hills designated respectively tunnel No. 1, tunnel No. 2 and tunnel No. 3. These tunnels are hills through which the railroad tunnels run and from which fact they are named. In Pennsylvania the hills would be designated mountains, but in Wisconsin they are only hills. But they have water breakers



SHIMP IN THE JEWELL ROADSTER MAKES THE DUST FLY



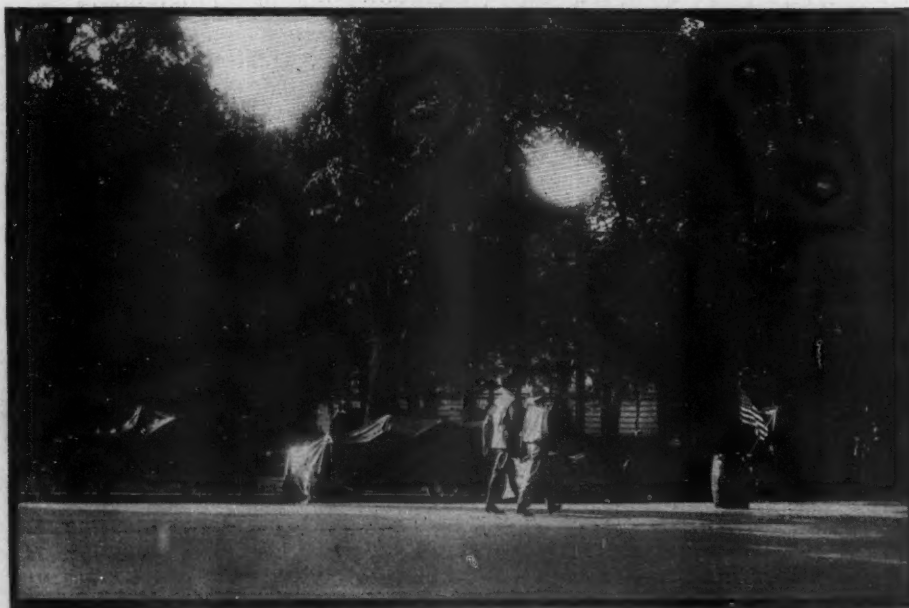
STARTER E. L. FERGUSON

some of which are worse than the worst of last year's Glidden pilgrimage.

The No. 1 hill is 98 miles out of Madison, No. 2 is 106 and No. 3, 113 miles. Each hill is nearly 1 mile in ascent, over tortuous sand trails and with roads too narrow to angle across the water breakers, necessitating bringing the car speed to a snail pace and making picking up hard work. In places the grade reaches 20 per cent. You no sooner reach the summit than an equally treacherous descent begins, a descent in which it is unsafe to let the car speed for fear of a dangerously-sharp curve, a bumpy approach to a culvert or small bridge or a water breaker. One or two drivers may have been aware of this tunnel situation but the great majority was not. But the tunnels were not all. Out of Sparta, 125 miles from Madison, long stretches of fine sand were encountered, through which all of the cars sped at their fastest. Had the drivers known the real road situation they would not have loafed over the good roads to Baraboo and some of the teams actually stopped and rested when 75 miles out. As it was soon after the tunnel hills were reached some soon found themselves 5 or 10 minutes behind schedule. In one case there was 47 miles to be made in a little less than 2 hours. The result was the natives saw plenty of speeding. The big cars generally were equal to the occasion of making up time on deep sand, but some of the smaller ones could not overcome the handicap. Those that did not suffer because of the loss of time damaged their cars on the water breakers.

### One Glidden Car Suffers

Only one Glidden contestant perfect score was shattered, that being No. 12 Midland, piloted by E. O. Hayes. This car had two troubles. It had checked into Madison with a broken fender iron and had to repair it soon after checking out this morning. To do this 60 cents worth



CARS PARKED IN CAPITOL SQUARE AT MADISON, WIS.



of material was needed, consisting of a wire and some strap. Sixteen minutes were needed for the task so the penalty read .6 point for material and 1.6 point for labor. This time loss cut into Driver Hayes' schedule and when on the tunnel hills his mud apron struck a water breaker and pressed against the flywheel. It was a 15-minute task to repair it, which added 1.5 point for labor, making his total record for the day 3.7 points. In spite of his stops Hayes brought the car into La Crosse ahead of schedule.

A second clean score to fall was No. 112 Mason in the Hower end of the strife. This is the only two-cylinder gasoline car in the contest and its performance was being closely watched. Its troubles consisted in breaking a petcock on one of the cylinders. This happened in the tunnel rough lands and it still remains a quandary with Driver Snyder how it happened. As it was the petcock was broken and a new one was taken from the radiator base and the opening in the radiator plugged with wood. Starter Ferguson and Pilot Lewis in checking over the observer's score card levied a total of 2.4 points, of which .2 was for material loss—the wooden plug—and 2.2 for labor in changing the petcocks. The work required 22 minutes and made fast running necessary for the car towards La Crosse.

#### Maxwell Has Spring Trouble

Spring trouble relieved No. 107 Maxwell driven by C. E. Goldthwaite, of its clean record. On his arrival at Madison a small crack was showing and a new spring clip was used, Goldthwaite putting it on just out of Madison and requiring 22 minutes for the task. The penalties totaled 2.6 points, .2 for material and 2.2 for labor.

Few had expected that the little Hupmobile would lose out, but it met its troubles in the tunnel hills and was black-marked 358 points on time, being late in checking in here tonight.

No. 111 Jewel runabout received 9 points for lateness. This car had troubles on the tunnel hills. Its motor stalled and the car was crosswise of the road for some time, blockading it.

This ended the clean score massacre. In addition both of the Brush runabouts added to their previous debit marks. No. 104 lost 343.9 all told, 335 of which were for lateness on arrival here tonight. It will be remembered that this car burned out a connecting rod bearing the first day and all of its subsequent troubles have originated from this. Today there was added .3 point for connecting rod bearing, .1 for an extra nut, 1.1 for labor on the bearing, .5 repairing the gasoline feed pipe for labor connected therewith and 7 points for labor placing the new connecting rod bearing.

The official report on the No. 103 Brush has not yet been announced.



MAP OF ROUTE FROM MADISON TO LA CROSSE

Two of the non-contesting cars suffered troubles. No. 79 Studebaker press car, piloted by George Smithson, broke a right front wheel 114 miles out and near Summit. The wheel was examined in Elroy, the noon gasoline stop, and a bolt noted out of the hub. When at the summit of

tunnel No. 3 and going through sand the wheel collapsed, the spokes going at the hub. Fortunately another press car of the same make came along, picked up some of the party and hurried for La Crosse, where a wheel was taken off the third Studebaker press car and hurried to Summit. It was exactly midnight when the car reached the night control. In the meantime word had been telegraphed to Minneapolis to the Studebaker branch and Branch Manager Gotschall had a new wheel in La Crosse before the car arrived.

Starter E. L. Ferguson had his second accident, his Acme six having to be ditched to avoid striking a child that unexpectedly stepped from the brushwood near Wilton, 105 miles out. The car was ditched and after demolishing three posts of a wire fence stopped with a broken spring. Word of the accident was wired to La Crosse and as soon as it became known that Starter Ferguson could not arrive until morning the publishing of the report of the day was postponed, as Ferguson carries the starting sheet and without it the penalties could not be calculated. It required some time for the Acme spring to be repaired and then, shortly before midnight, the car was headed for La Crosse.



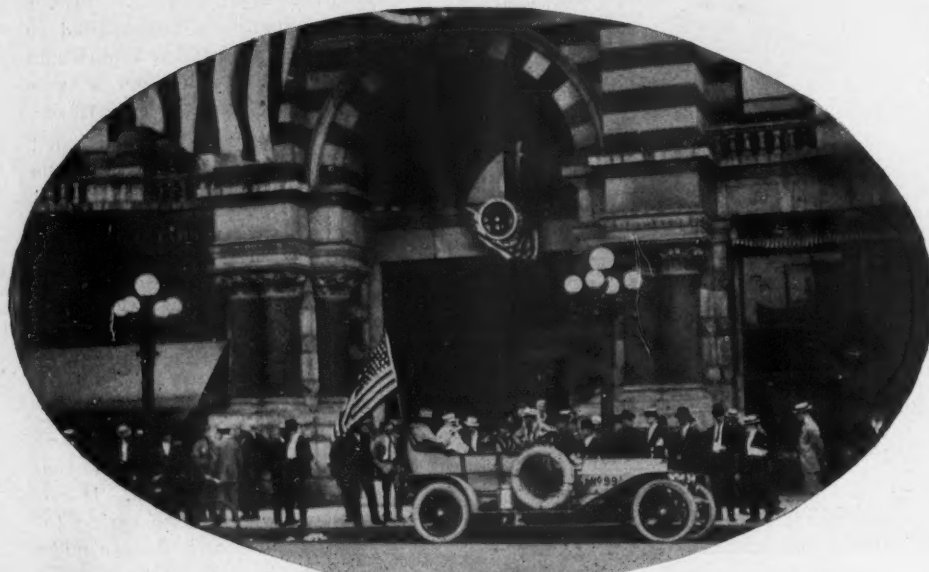
HUGH CHALMERS A TOURIST



TOURISTS STOP BEFORE ENTERING CITY OF MINNEAPOLIS



STOP FOR GASOLINE AND SOMETHING TO EAT AT ELOY



IN FRONT OF WEST HOTEL IN MINNEAPOLIS



GLIDDENITES ENJOY BOAT RIDE AS MINNEAPOLIS' GUESTS

From midnight until 3 a. m. the party was lost in the hills, and after getting on the confetti trail fast time was made, reaching La Crosse at 5 a. m.

#### Dai Lewis Causes Confusion

For the first time in the tour many of the contestants momentarily lost confidence in the redoubtable Dai Lewis, official pathfinder and pilot. At 79.5 miles out the route book directions read: "Turn left, red barn on right, no wires, and on down hill with very sharp left turn and narrow road." Just before this point was reached the tourists were bowling along over a broad, good dirt road towards Union Center, which was 3.5 miles ahead and where the turn was made there is not the slightest vestige of a road excepting the grass to the left was covered with confetti and in the hay field at the roadside appeared a couple of sandy wagon tracks which seemed to lose themselves over the brow of a hill.

Nearly every car overran the turn and had to reverse. Some less fortunate continued a couple of miles on the good road. This bad stretch of road through the hay field, down a steep hill, skirted the margin of a wooded side hill and meandered through fields. Finally it landed up at Union Center, where it just as suddenly butted into the main dirt road as it had started from it 3.5 miles back.

Pathfinder Lewis in explaining the affair stated that on the pathfinding trip in May the main clay road was so deep with mud that horse vehicles had abandoned it and the only road left was the sand path through the field, which at that season was in good condition. However, nobody lost points because of the experience and Lewis will be kept busy for several days explaining how it all happened.

#### Beautiful Wisconsin Scenery

To those easterners, whether hailing from Manhattan, New England or Pennsylvania, the country passed through today was a revelation. These people have dreamed of their Green and White mountains, their Adirondacks and their Catskills, but never for one moment thought there was anything west of Chicago but plains covered with corn and wheat and a river or two. The departure from Madison readily dispelled such conception, for no sooner is the Wisconsin capital, nestled between Lakes Mendota and Monona, been left behind than the road winds to heights commanding a panorama of grain fields to right and left as far as the eye can see, the universal comment being, "As fair a land as ever gladdened the heart of man." To the right a ridge of hills capture the eye, when it travels beyond the long fields of waving wheat and oats and barley. At places the hills attain a height of several hundred feet and are rock-capped, in places loose rocks being balanced with a dexterity to rival that met with in mountains. To Baraboo the run is a boulevard, winding, rising and descending all of the time.





JEWELL  
CAR



THREE CARS FIGHTING  
FOR PLACE ON A  
STEEP HILL



FRANK WING, H.C. MARMON AND THE  
TWO MARMON CARS



MOTOR AGE  
CAR MAKING  
UP TIME TO  
GET IN AT  
THE FINISH



No 103 BRUSH SPINNING  
ALONG A  
GOOD ROAD



THE RAPID TRUCK  
CARRYING TIRES AND COMPLETE CAMPING OUTFIT



RECEPTION COMMITTEE AT MILWAUKEE.

# GLIDDENITES SEE THE AGRICULTURAL WEST

## FIFTH DAY

La Crosse to Minneapolis, 177.8 Miles  
 Class A—Time, 8 hours 57 minutes  
 Class B—Time, 9 hours 12 minutes  
 Class C—Time, 9 hours 27 minutes  
 Class D—Time, 9 hours 42 minutes  
 Class E—Time, 9 hours 57 minutes  
 Roads dusty, weather fairly cool

**M**INNEAPOLIS, Minn., July 17—Today the Glidden tourists in the La Crosse-Minneapolis stage of the long run to Denver received their first introduction to what they have so often heard of but which many of them have never seen, namely, the great west. They did not really get a glimpse of the real west—that does not come until Omaha is left behind—but they did see the great ocean of growing grains waving in the golden sunlight; they did see the greatest circle of vision ever beheld before, with almost every square foot luxuriant with wheat or corn or oats or barley; and they did see evidences on every hand of the frugality of the wealthy Minnesotans who cultivate to the very side of the dirt roads so that the telegraph poles look as if they had wandered from their accustomed places into the midst of the grain fields.

The tourists got a glimpse of what can be looked for on the vastnesses of Nebraska and Kansas, and although the majority of the farm land passed through today is divided into half and quarter sections—320 and 160 acres—the fences are so obscured that the land bounded by the broad horizon appeared as one vast field, undulating in responsiveness to the passing breezes and suggestive of the golden harvest which has annually enriched the state for years and which is fast making Minnesota one of the biggest selling fields for motor cars.

### View Agricultural Minnesota

Agricultural Minnesota as passed through today from Rochester to Minneapolis, 95 miles, is not a level state like southern Illinois, but a vast, endless, rolling expanse covered with grain fields wherever the eye can reach and dotted here and there with small patches of forest, floating islands on this great verdure-clad ocean of the Mississippi valley. The homes are adequate, not gaudy; prosperity is written on every acre of cultivated soil, and it is all cultivated, and an atmosphere of contentedness pervades the entire state.

Today's run has been practically through Minnesota, for immediately checking out of La Crosse, Wis., this morning the Mississippi was crossed and adieu bade to rolling Wisconsin. But the grain-garbed hills of Wisconsin as quickly gave way to the wilds of eastern Minnesota, and the unexpected appeared on every side.

Scarcely had the long bridge over the river been passed than hills, infringing on the magnitude of mountains, appeared to the right and left; ahead were forest-robed heights and behind over the broad expanse of the river stretched the long bluffs on the Wisconsin side of the great Father of waters. For 25 miles it is a steady up and down hill route, 1 minute skirting around the edge of a high hill whose trees towered high on the right, and on the left stretched a valley hundreds of feet deep; across the valley rose other heights and

ley extends for 8 miles until Winona, with its famous Sugar Loaf mountain, is reached, which is on the outskirts of the city. The valley winds from left to right, varying in width from  $\frac{1}{2}$  to 1 mile. On each side are the cultivated hillsides with their crowns of forests waving against the northern sky. The road winds along the hillside, offering an unsurpassed view of the place, showing the cosy homes nestled among the trees. Suddenly when the smoke and chimneys of Winona appear ahead the valley widens and the road turns to the left around the brow of a hill, Sugar Loaf mountain appears at the



PREPARATORY TO STARTING FROM MINNEAPOLIS TO MANKATO MONDAY

beyond were still greater hills. It looked as if the White or Green mountains with their New England robes had been magically transported onto the western shores of the Mississippi.

### Beautiful Landscape Unfolds

From the river level to the highest point it is a long tortuous climb beset with stretches of sand, some water breakers and sharp curves, but the effort of threading the narrow road is more than repaid by the rapidly unfolding landscape which, like the magician's scroll, quickly unfolds itself to the eye. To the right rolling farms extend for 15 miles plainly visible; to the left the field of vision is of equal magnitude. The eye falls on a hundred hills and quickly as the car speeds along these give way to others in constant progression.

When 24 miles have been covered a long descent begins into what is known as Pleasant valley, but which by many is known as the vale of Winona. This val-

ley extends for 8 miles until Winona, with its famous Sugar Loaf mountain, is reached, which is on the outskirts of the city.

But with the passing of Winona the mountain scenery of Minnesota does not end. Scarcely has the railroad crossing



FOUND IN ONE OF THE TIRES



marking the western boundary of the place been passed than a long 2-mile climb starts, and as soon as the summit is attained an equally long descent begins into Stockton valley, which in places rivals Pleasant valley. This is 45 miles out. But the change is due, little by little the hills recede, they become lower, forests give way to fields of green and before another 40 miles have been covered the grand transformation scene has been accomplished and agricultural Minnesota has usurped the throne so proudly occupied by forest and hill.



MAP OF ROUTE FROM LA CROSSE TO MINNEAPOLIS

any town passed through up to date on the trip. The inhabitants lined the lawns on both sides of the long streets; it was gala day and everybody cheered the cars. Like many of the other towns encountered so far, Winona gave its visitors an enthu-

was stripped and the car returned to La Crosse, where it is being repaired, after which it will continue the tour as a noncontestant. This makes two cars that have withdrawn.

#### Others Are Penalized

No. 111 Jewell run-about had some difficulties, losing 6 points which, added to the 9 lost yesterday, brings its

total up to 15. The trouble arose with the gasoline feed system, there being 3.8 points for outside labor rethreading the air pump, 1 point for labor by the driver on this, 2 points for a hinge which cost 5 cents and 1 point penalty for applying the hinge.

No. 104 Brush added 294 points to its score of penalties, bringing the total up to 1,251.6. Of today's points added 9 were for labor and 285 for being late in checking in at night. The score of the other Brush, No. 103, was given out as incomplete tonight owing to the fact that the driver piloted the car according to the route book to the Plaza hotel, where he understood the checking station was. On learning his error he headed for the West hotel and arrived late, the exact amount of which does not as yet appear, the committee still having it in hand.

It was scarcely 3 o'clock this afternoon when the dust-covered khaki motorecade began arriving. The chairman's car was closely followed by the Premiers and others. While the later cars were arriving oiling up was the general order and as soon as all but a few of the late ones had come in the order to start was given and the procession through Minneapolis to the West hotel began. From the hotel the cars went to the parking space near the Plaza hotel, the headquarters of the Minneapolis Automobile Club.

#### All Kinds of Roads

Never in any previous Glidden tour has any one day's run offered such a variety of road conditions that tested cars to the limit as yesterday's. Boulevard roads, deep sand, dangerous water breakers, steep hills and dirt roads all combined in succession. The hills are steep and contain sharp curves with water breakers; the sand is loose and soon furrowed with ruts over a foot deep and through which the cars slewed from side to side. It was a supreme test of motor cars and the wonder is that more were not penalized. It would be difficult to find a harder test and had rain been encountered it would have been a veritable Waterloo. It was this stage of the trip that necessitated 6 days in the pathfinding trip, the heavy rains at that time making it almost impossible to progress. It had been in fear and trembling that the tourists had approached this stretch, but luckily the weather remained good and the trip failed to produce the excitement anticipated.



SAUK CITY, WHERE SOUVENIR CANS OF PEAS WERE GIVEN AWAY

Yet nature has not done all to make the Gliddenites entry into Minnesota attractive; man has done his. The route is regularly punctuated with industrious cities, small towns and little villages. Winona gave the tourists the greatest welcome of

siastic greeting and showed it was well posted on motoring and motor cars.

From here the route lay through Stockton, Lewiston, Utica, Eyota, Chester, Rochester, Pine Island, Zumbrota, Cannon Falls and Westcott. The roads throughout are dirt, good in dry weather but almost impassable in places should heavy and continual rains have preceded the tour.

As it was the day proved an easy one for everybody, not a single car not previously penalized being added to the demerit list. All of the sixteen contestants in the Glidden and Detroit classes came through unscathed and were waiting in line at the outskirts of Minneapolis when the reception committee arranged a formal entry into the Minnesota metropolis. The Howerites did not fare so well, three of them coming under the ban. No. 106 Hupmobile, which met its first trials on yesterday on the Madison-La Crosse stage, withdrew today when but a short distance out of La Crosse. The low-speed pinion



PREPARING FOR ROUGH WORK

# MINNEAPOLIS TO MANKATO AN EASY JAUNT

## SIXTH DAY

Minneapolis to Mankato, 132 miles  
Road gravel, dirt and gumbo

Class A, time 6 hours 36 minutes  
Class B, time 6 hours 46 minutes  
Class C, time 6 hours 56 minutes  
Class D, time 7 hours 06 minutes  
Class E, time 7 hours 16 minutes

**M**ANKATO, MINN., July 19—Today's run from Minneapolis here has proven the easiest one of the tour and by far the shortest; in fact the run of a little over 100 miles suggests the road schedules of years ago. The reason of the short schedule is that from Minneapolis to Omaha by way of the present tour is 451 miles, being too long for a couple of days should rain be encountered. This Minneapolis-Omaha stage of the route can properly be designated the gumbo stage, and is the one that has been feared by all of the officials and tourists for days. Today has been perfect; the prospects for tomorrow are good and if the following day proves propitious the tourists will have crossed Iowa without knowing the real nature of gumbo.

Today's route divides itself properly into two stages, the first being the run of 80 miles to Owatonna over a combination dirt and gravel road, and the second stage the Owatonna-Mankato half, which is gumbo practically all of the way except for a few stretches of dirt and recently-made gravel roads. It would be easy work on the first half of the route in any kind of weather other than continued rains and in the second half all kinds of troubles would be the motorist's lot who tried to make the run in a wet season.

Gumbo, as the tourists saw it today, is a particularly inoffensive road material;



MINNEAPOLIS TO MANKATO

in fact the majority of the drivers liked it better than dirt. Today these gumbo roads are hard and smooth, the surface being very black as compared with the ordinary dirt road. The surface is, if anything, a little rougher than dirt in that there are innumerable shallow depressions in which the water lies after rains. Gumbo is immensely better than dirt for roads in dry weather, in that it does not become dusty, there being but a very faint cloud of dust today behind the cars that were making fast time over the road.

Gumbo makes good farming land and the crops of oats and barley are heavier than on the clay. If this soil is exposed to the direct rays of the sun it bakes and cracks, but once the growth of grain covers the soil the gumbo holds the moisture and crops on it can withstand long droughts.

In wet weather the chief trouble with gumbo is that it becomes adhesive, stick-

ing to the wheels and tires so that the wheels become miniature land rollers on each side. A car will rarely sink as deep in gumbo as into ordinary mud, but much greater traction is required to propel a car through it.

## Disquieting Rumors Heard

Yesterday in Minneapolis many rumors were current regarding the road conditions between Fort Dodge and Council Bluffs. Up to a week ago it had rained for nearly a week and roads have been washed away in places and bridges damaged. As a result of these rumors and the problematic nature of gumbo many of the cars fitted out this morning with block and tackle as well as long coils of ropes which have been strapped on to the back of the tonneau. The Pierce, Premier and Marmon teams all took this precaution and several others will have done so before the start tomorrow. The car equipment is now beginning to look quite formidable and a picturesque phase of the tour is beginning. On the sides of some cars are strapped shovels, pickaxes and small axes and on others are other tools necessary on bad roads.

## Start From Minneapolis

After a 2-day rest in Minneapolis everybody was ready for the start from Minneapolis this morning which was postponed from 7 until 8 o'clock because of the short run, the first car being due to check in here at 2:36. But long before that time the majority of the machines were garaged in the vacant lot half a block from the Saulpaugh hotel, which is official headquarters here. J. S. Williams in No. 108 Pierce, last year's Hower winner, was first car to check out of Minneapolis this morning, but No. 7 Jewell in the Glidden ranks was first into Mankato. Williams when following the Motor Age Thomas through St. Paul had a puncture and was delayed, but managed to check in third in spite of that. The second car to check in today was No. 1, Webb Jay's Premier; third was Williams' Pierce; fourth place went to J. C. Moore, driving No. 114 Lexington runabout in the Hower end of the competition; No. 8, Teddy Day's Glidden Pierce, was fifth, followed by No. 2, Hammond's Glidden Premier.

## Tire Troubles of the Day

Today's run was productive of more tire troubles than was anticipated, due largely to the great number of right-angled turns and numerous other bends that had to be made. For miles the road appeared to have as many right-angles as a staircase and as the roadbed is narrow the taking of these turns at any speed went hard on the tires. Frank Wing in No. 4 Marmon checked out with a flat tire and immediately repaired it after checking out but he had a puncture on the



PICTURESQUE STONE QUARRY ALONGSIDE ROAD NEAR BARABOO, WIS.



road. No. 14, Searles' kerosene White steamer, also checked out with a flat tire and in addition had a blowout.

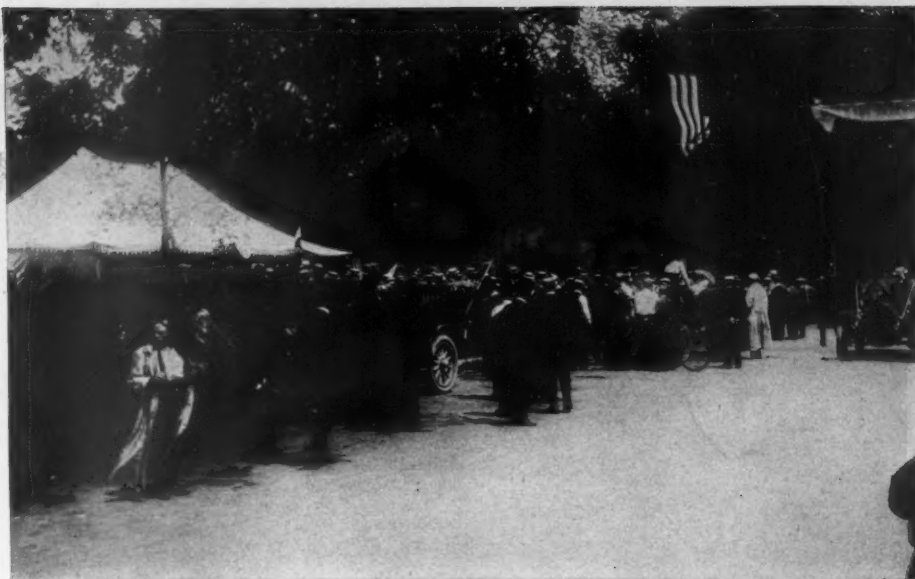
Minnesota as seen from today's confetti trail is not so luxuriant and productive an agricultural state as was the run from LaCrosse to the Twin Cities. The land passed through today has been much more level and more broken with forests and water courses. At times the complete circle of the horizon is bounded with forests which have replaced the cultivated land of Friday's run. On reaching Owatonna the cheese and dairy section of the state is entered, Steele county, in which Owatonna is located, alone supplying more than 3,000,000 pounds of butter. Mankato is also a big dairy center, but not so entirely devoted to the industry as the Owatonna section. Throughout the country creameries are numerous and this industry offers a fruitful selling field for the motor industry.

Mankato, with a population of 11,000, is located on a sandy tract which raises it sufficiently out of the gumbo element. The city has a motor club of sixty members, J. H. Hohman being president and M. D. Fancher secretary. Mr. Fancher also is chairman of the entertainment committee for the Gliddenites and when Pathfinder Dai Lewis was going over this course in the early spring Mr. Fancher met him in Minneapolis and made the trip over the road with him. On that trip the E-M-F ran into gumbo and much time was required on the trip. It was because of this that at the completion of the path-finding expedition efforts were made by some parties to have the route altered, cutting out Mankato because of the gumbo danger. The up-to-dateness of the Mankato club and its efforts, however, prevented any changes.

#### Mankato Important Center

From a motoring viewpoint Mankato is an important center, there being 110 cars owned in the city, giving a motor population of one car to every 100 population. Several makes of cars are handled here, the Maxwell, E-M-F, Ford and Buick being sold directly from local salesrooms. Many other makes of cars are handled on the curbstone salesroom principle.

The Mankato Automobile Club this evening gave a Dutch luncheon to the tourists at the Elks' Club and had a band. This is the last chance for evening entertainment, as tomorrow night the party will take possession of the special Pullman train at Fort Dodge and will use the train exclusively until Kansas City is reached. Each member of the tour proposing to use the train had to pay \$78 to the contest board in Detroit which covers his entire train accommodation including meals and berths until Kansas City is reached. It is understood that this also includes noonday lunch which the Pullman company will furnish each tourist each day. Those members of the tour who when in Denver prefer hotel accommodation may do so, but



WHERE THE LUNCHEON WAS SERVED TO TOURISTS IN MILWAUKEE

their train expenses go on just the same. Today's chapter of happenings along the road has been a limited one, the major occurrence being the breaking of the right steering knuckle on No. 97, the second E-M-F pilot car under the charge of Mortimer Reeves. The accident happened 59 miles out on a level stretch of gumbo with cornfields on either side. When the knuckle collapsed the car ran a few feet into the corn, but nobody was injured. Driver A. J. May took the broken part to Faribault and Assistant Pilot Reeves completed the journey on the chairman's car.

The Maxwell press car carrying Chicago newspaper men bent its front axle between the spring seating and the right knuckle when it turned off the road to let a contesting car pass. The road was narrow and the Maxwell while running in the long grass struck in a deep hole into which the right front wheel dropped. The car is now being repaired in the Maxwell salesroom and will be ready for the roads tomorrow.

The Hupmobile, which withdrew before reaching Minneapolis, is continuing as a non-contestant and will go over the entire route on schedule time, checking out each

morning with Starter Ferguson and being checked in at night. The driver carries the regular running card that each car must have and which shows the checking out and checking in time.

#### Rapid an Early Starter

Up to the present few of the tourists have had more than a glimpse of the Rapid truck which is accompanying the tourists with a load of twenty Goodyear air bottles, four passengers and four or more suitcases. Up to this morning the truck has checked out every morning with Pilot Lewis around the 4 o'clock mark, but today because of entering the gumbo region it left Minneapolis at 1 this morning and checked in here at 10:10, more than 2 hours ahead of the pilot car. The truck will continue to check out early until after the gumbo terror ceases, in fact it left this afternoon in order to do part of tomorrow's trip and be at Fort Dodge hours ahead of the tourists. The truck is driven by Frank Grogan and carries W. Simons, of the Goodyear Chicago branch; T. P. Myers, and James Carey. Up to the present the car has made every run from Detroit on a 15-miles-an-hour schedule and has its regular running card showing its checking out and checking in time.

Dai Lewis, in No. 91 E-M-F, is strewing the confetti with the same regularity as in former years; in fact, up to the present time he has not wandered from the prescribed route in a single instance. He invariably leaves 3 hours ahead of the first car to check out and is on hand at the checking-in place to look after the cars on their arrival. This morning he left Minneapolis at 6:30 and arrived here at 12:15.

#### Hospitality of St. Paul

Today's run afforded two more examples of the continuous hospitality that the tourists have been accorded since leaving Detroit. St. Paul this morning offered a most unique one in the shape of a small box of chocolates, a couple of cigars, a box of matches and a lapel pin which was



MARMION DRIVES WITH TOP UP



ONE OF THE MOLINE FLEET OF DREADNOUGHTS



AT THE COUNTRY HOME OF MINNEAPOLIS AUTOMOBILE CLUB



LONG STRETCHES GAVE FINE OPPORTUNITY FOR FAST DRIVING

handed to each in the tour. This was anticipated because when passing through the city on Friday each tourist was handed a bouquet with some more chocolates and the announcement that souvenirs would be given Monday morning. The method of presentation was novel, the Auditorium convention hall being used, each car entering the hall at one side, circling around the interior where the souvenirs were presented and passing out at another door.

The real genuine hospitality of the day occurred at Owatonna, the gasoline stop. Here on the main street the Owatonna Automobile Association had erected a large tent under the direct charge of G. A. Merrill, chairman of the entertainment committee, who was assisted by a dozen young women who served neat lunches of sandwiches, doughnuts, coffee, buttermilk and lemonade. The serving of the lunch attracted all of the tourists and Owatonna's kindness will remain as one of the pleasant memories of the tour. The place has a population of nearly 7,000 and for miles before entering it motor cars filled with sight-seers were scattered every mile along the road and waved good fortune to all of the tourists.

#### Blood-Curdling Tale

Not a little interest was added at the finish of today's run when the announcement was made that where the cars are parked thirty-eight Indians were hanged at once December 26, 1862. Previous to that there had been a general uprising of the Sioux Indians due to the encroachments of the white man and the consequent fear on the part of the Indian of losing his land. Across from where the hanging took place stands the old building in which sixty-two other Indians were imprisoned at the time but later were liberated by President Lincoln.

Northfield, passed through today, also has its page in pioneer history, its incident dating back to September 7, 1877, on which day the Jesse James gang attacked the village bank at noonday. Two of the depredators were killed as was the bank cashier. The building still stands but is now used as a postoffice. The association of this incident of the '70s was responsible for one accident today, namely, the bent Maxwell front axle already referred to. J. S. Williams in his No. 108 Pierce run-about was listening to his observer's story when passing the building and failed to make the proper turn, going 7 miles on before discovering the error, and it was for him that the Maxwell car turned completely off the road to let pass when the front wheel dropped into the big hole.

#### Pretty Lakes Abound

Today's run has been truly Minnesotan in one respect, namely, in the pretty lakes that dot much of the territory traveled through. Scarcely had St. Paul been left behind than miniature lakes no greater than ponds in extent appeared. At Faribault Cannon lake was passed.





A BEAUTIFUL RIVER DRIVE AT MINNEAPOLIS



AT MINNETONKA THE TOURISTS WERE TAKEN FOR A BOAT RIDE

CALHOUN BOULEVARD MINNEAPOLIS



A GLIMPSE OF THE CANNON RIVER PASSING THE LAKE HARRIET PAVILLION, MINNEAPOLIS



MINNEHAHA FALLS



SUGAR LOAF NEAR WINONA

# TOURISTS NOW USING A HOTEL ON WHEELS

## SEVENTH DAY

Mankato to Ft. Dodge, 138.5 miles  
 Weather hot; gumbo roads dry  
 Class A, time 6 hours 57 minutes  
 Class B, time 7 hours 07 minutes  
 Class C, time 7 hours 17 minutes  
 Class D, time 7 hours 27 minutes  
 Class E, time 7 hours 37 minutes  
 Average speed class A, 19.4 m. p. h.

**F**ORT DODGE, IA., July 20—The Gliddenites have at last arrived here, which is a milestone in the tour in that it marks the end of the regime of hotel accommodation, as from now on the tourists will spend each night in the Pullman train and eat in dining cars. The run from Mankato here, although but 138.6 miles, the second shortest of the tour, has been a hot one and one which has landed three cars in the ditch, none of which suffered any injury and the only inconvenience being loss of time.

Today's story of penalties is a light one, three cars being penalized but all of them having received demerit marks before so that tonight with 7 days of the tour over eleven of the original thirteen Glidden contestants have perfect scores; all three of the contestants in the Detroit trophy ranks are perfect; and seven or 50 per cent of the Hower contestants are in the perfect-score class. This makes a total of twenty-one perfect scores. One of the three cars to suffer today was No. 12 Glidden trophy Midland, which stopped 6 minutes to repair the left front fender, which broke on the Chicago-Madison stage of the tour. The repair was effected with a leftover wire from the first repair so that the car was only penalized for time, the penalty being .6 point, making the car's total penalty 4.3 points.

A second car to add to its previous penalty was the No. 107 Maxwell, driven by C. E. Goldthwaite. A water leak started at the union of the water manifold with the first cylinder and 16 minutes were needed to stop it. As no material was required the car was debited for time only and 1.6 point added to its score, giving it a total of 4.2 points.

### No. 3 Chalmers Penalized

No. 3 Chalmers-Detroit received 204 points for repairing a connecting rod bearing, which has been loose for a couple of days. Thirty-one minutes were needed to take the apron off; 39 minutes to replace it and 100 minutes work on the connecting rod bearing. This made a total of 170 minutes or 17 points penalty. The car was 189 minutes late checking in and after its 2-minute allowance received 187 points penalty for lateness.

Only one Gliddenite had to suffer today and that for tightening a loose fender iron which has been giving it trouble for sev-



MANKATO TO FORT DODGE

eral days. The car is the Chalmers-Detroit No. 3, driven by William Bolger. The Detroit trophy trio seems to have no idea of what a penalty looks like and the members of this clean record class are covering mile after mile as smoothly as at first.

### Hower Candidates Suffer

There was more alteration in the standing of Hower trophy contestants. The Jewell roadster, No. 111, driven by John Shimp, spent time enough this morning in tightening hub flange bolts to be marked up with 5.6 points, and an additional .2 was scheduled for a washer used. The total of this car has therefore grown to



SNYDER IN THE MASON TWO-CYLINDER

20.8. The Mason's score has been increased from 2.4 to 4.3 points, on account of its run from Madison to La Crosse on Thursday. There was some question about some work done and it has just been settled, so that an additional 1.9 were given it for the work done in making a wooden plug for the radiator, with which to replace a pet cock transferred to a cylinder head.

The two little Brushes have been withdrawn, the entrants stating that the schedule has been found too strenuous for a 7-horsepower single-cylinder runabout. So with their withdrawal goes to each a penalization of 1,000 points. The marks given to Trinkle's car on the runs from Madison to La Crosse, from that city to Minneapolis have just been announced. On the former trip the mark was 3 points, .6 of a point being for a new radius rod, and 2.4 for the labor in putting it into place. On the following day another radius rod had to be secured, the demerit again being .6, but less time was necessary—8 minutes, so that the charge against the little car was 1.6, a total for the day of 2.2, and for the two of 5.2. The 1,000 bring its standing to 1,005.2, and this is considered as remarkably fine, for the machine has been able to make its schedule every day. Dwight Huss has been having considerably more trouble, as has been explained, and so his final standing is 2,252.6. Both machines will continue as non-contestants.

Starter E. L. Ferguson in his Acme car participated in what might have proven a serious accident, when 1 mile out of Winnebago the eye bolt in the end of the tie rod connecting the steering knuckles came out and the car struck the end of a cement culvert and crashed into the ditch, pulling up close beside a wire fence. Starter Ferguson was thrown through the wire fence and had his left hand badly lacerated and his right foot injured. He was taken by a farmer to Winnebago, where his wounds were dressed and later took the special train to Fort Dodge. He will travel by the train the remainder of the tour.

### Trip Through Gumboland

Today's run has been gumbo from start to finish and lucky for the tour it has been dry, for had wet weather been encountered there would have been not a little camping by the wayside until the gumbo dried. Three days ago 1 inch of rain fell here and south of here the road to be taken tomorrow to Council Bluffs is partly under water, which will necessitate a detour, but north of here on today's run the only indications of the rain were the flooded fields in places and a few very soft spots in others.

The roads of today divide themselves readily into two divisions, the Minnesota





BERNHART IN JEWELL TOURING CAR

stretch as far as Elmore, 55 miles, where the state line is crossed, and the Iowa division of 85 miles. The Minnesota roads were the finest kind of gumbo today, the cars running along at a 30-mile-an-hour pace without any trouble. The citizens had dragged them for miles so that the surface was as smooth and almost as hard as macadam. The Iowa division on the other hand was rough for 50 per cent of the way and between Germania and Bancroft were the roughest yet encountered on the tour. The gumbo was filled with winding hard ruts and every hundred feet or more a soft spot was encountered in which the wheels sank to the axles. There were innumerable soft spots and sink holes.

#### Land Particularly Low

The land in this section of the state is particularly low, the farms containing many small ponds which overflowed onto the adjoining fields with the slightest provocation. In this section the farms are

not in so good condition as on the high rolling lands of the state. Soon after Bancroft was left behind the road drag had been used and the gumbo was smoother, there being a slight mixture of sand with it which gives a bright appearance and is slightly more dusty. After leaving Algona a great improvement was experienced and a 30-mile-an-hour clip was possible. Into Humboldt the road is as wide and smooth as a boulevard; and from Dakota City to Fort Dodge it is a straight road containing 5 miles of good gravel and the remainder a good sand and gumbo combination. The road is the only one in this part of the state in which so much gravel and sand are found.

#### First Road Trouble

The first road trouble noted today was pilot car No. 97 E-M-F at Vernon Center, 21 miles out of Mankato, with the right drive shaft in the rear axle broken off close to the wheel. Assistant Pilot Reeves in charge of the car was picked up by the chairman's car and the E-M-F driver has arranged to be ready for the start tomorrow morning.

The Rapid truck, carrying Goodyear air bottles and tires, nearly upset in a ditch on an approach to the Des Moines river, 94 miles from Mankato. The truck turned off on meeting a horse vehicle and when well on the side of the embankment the earth gave way and the right side dropped until the truck was resting at an angle of 45 degrees. The work of rescue fell to No. 76 Motor Age Thomas, driven by George Schuster of round-the-world fame and No. 81 Studebaker press car, driven by Harry McIntosh. With chains and ropes both cars hitched to the truck and pulled it out, but before the work was completed several of the contending cars were caught up and a small procession was formed.

Both of the Brush runabouts started out



BARTHOLOMEW IN GLIDE

ahead of time today and are running as non-contestants. Trinkle with No. 103 checked in at 2 this afternoon but Huss with 104 was later, due to having to adjust the bearing of the left front wheel, which bearing had given trouble before he withdrew. The Hupmobile, also running as a non-contestant, was an early checker in.

#### Pierces Trail Pacemaker

In checking in this afternoon in the park square in front of the Crawford house, the official headquarters until the train arrived, the four Pierce entrants were trailing the pacemaker, having been close behind him for 25 miles. Webb Jay checked out 15 minutes ahead of the first car this morning in order to pick up the chairman in case of exigency, but he was back in the tour at the checking in time, owing to a blowout.



OWATONNA'S PRETTY GIRLS PASS LEMONADE TO THE GLIDDEN TOURISTS



H. O. SMITH, A. M. C. A. EXECUTIVE

**M**INNEAPOLIS, MINN., July 18—The Minneapolis Automobile Club which has charge of the Glidden entertainment is filling its promises made months ago when it announced its intention of not letting the party have an idle minute during its stay in this half of the Twin Cities. The entertainment began before the party arrived here, for Colonel F. M. Joyce, president of the Minnesota Automobile State Association, was at Detroit for the start of the tour and perfected plans then for caring for the tourists. He was again on hand at La Crosse and rode with the tour to Minneapolis.

#### One Round of Joy

Since the arrival Friday evening it has been one continual round of entertainment. Friday evening the officials of the tour and a few others were entertained by the officers of the Minneapolis club at an informal dinner in the West hotel; Saturday morning at 9 was a trolley party to Minnehaha and Fort Snelling; Saturday afternoon a special train took the tourists to Savage to the horse races; Saturday evening followed the monster parade of decorated cars through the city streets; later in the evening came the dinner of the Minneapolis Tribune to the visiting scribes; and Sunday morning at 9 there was a special trip by motor car to Lake Minnetonka, where an excursion took place, after which was entertainment at the country home of the Minneapolis Automobile Club. This brought the formal festivities to an end but in addition to this were many private entertainments.

When the cars congregated on the outskirts of the city Friday afternoon each

member of the tour was presented with a button bearing the insignia of the Minneapolis Automobile Club and attached to which was a short ribbon bearing the word "Guest." These badges were worn by the entire party while in the city and are in use still. At the same time a small book of coupons was handed each. Each book contained seven coupons, one granting the privileges of the Commercial Club to the tourists; a second affording passage on the trolley party to Fort Snelling as well as access to the military

grounds; a third to the officers' club at Fort Snelling, where luncheon was served; the fourth to the matinee races; the fifth to the sail on Lake Minnetonka; the sixth to the dinner at Tonka bay and the seventh to the dinner at the country house of the Minneapolis Automobile Club.

The opening shot of the entertainment was an informal dinner given by the officers of the Minneapolis Automobile Club to the officials of the tour and a few of the tourists. Colonel Frank M. Joyce of the club presided.

## Minneapolis Extends Glad Hand



GLIDDENITES OUTSIDE MINNEAPOLIS

**From Friday Night to Monday Morning There is Something Doing Every Minute of Day**



SCENE DURING PARADE IN MINNEAPOLIS



## to the Army of Glidden Tourists



GREETED BY THE MINNEAPOLITANS

### Trolley Rides, Steamboat Excursions, Military Drill and Big Parade for the Visitors

On Saturday morning the real entertainment commenced, with an excursion to Minnehaha Falls in chartered trolley cars. The club members had rightly decided that their guests would not appreciate rides to and from this beauty spot in touring cars. After walking around the falls, to the ravine at their bottom, and then up on the other side to the cars again, Fort Snelling was then visited to witness a review in honor of the motorists. There were eight companies of the Twenty-eighth United States Infantry, a platoon of ma-

chine guns, and the second squadron of the Fourth Cavalry on parade, and they made a fine showing. The bronzed veterans have but recently returned from Cuba and have seen service both there and in the Philippines, so that their maneuvers were a treat. The reviewing officer was Lieutenant-Colonel Silas Wolf. Immediately following the review the guests of the day walked across the verdant parade ground to the officers' club, where they were entertained.

In the afternoon a special train took



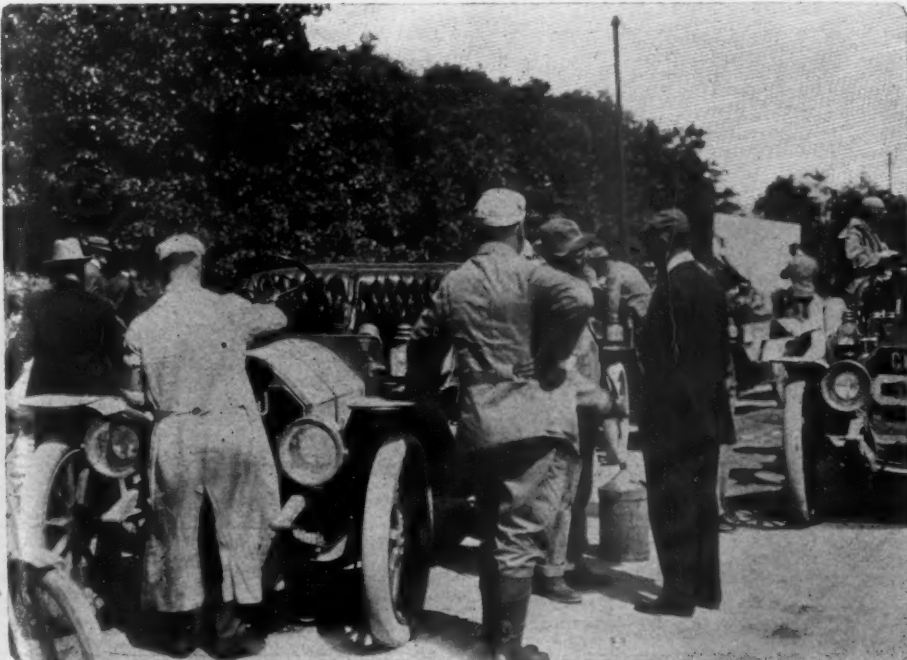
CHAIRMAN HOWER IN DAILY LECTURE

about 400 people, half of them belonging to the caravan, to Savage, Minn., to see a match race between Dan Patch and Minor Heir, the fastest harness horses in the world. One heat was run in 2:06 $\frac{1}{4}$ , and the horses were seen in warming up stunts, while lesser lights of the stable held the attention of the lovers of horses during the process.

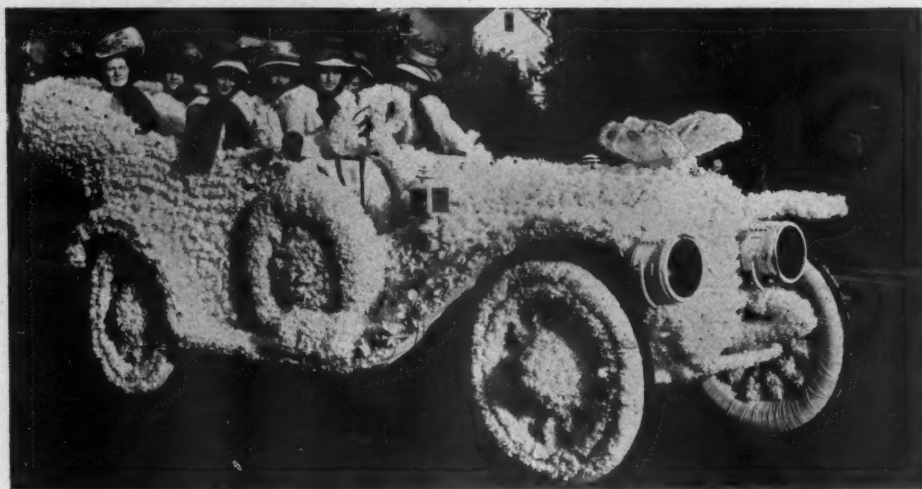
#### Monster Parade of Cars.

The climax of Saturday's entertainment was the monster parade of decorated cars, which took place during the evening, and in which 358 cars participated. The procession was formed in the park district and after traversing many of the residential streets moved through the business district, where the streets were jammed and every vantage point from fourth and fifth-story windows to building tops was crowded. Of the 358 cars in line more than forty were elaborately decorated, many of them in real flowers, others in artificial flowers, whereas not a few were decorated more from an industrial point of view. Of particular interest to the Minneapolis people was the large display of Wilcox trucks, made in the city, and of which more than a score were in the parade.

The decorated cars were divided into two classes—those decorated by children and the others decorated by adults or companies. First prize went to Miss H. B. Whitted, whose Wilcox touring car was decorated with a canopy of real cut flowers fresh from the conservatory and intertwined with electric lights. Second prize, a pair of Solar eclipse lamps, went to C. E. VanDuzee, with a Chalmers-Detroit



WEBB JAY IN PREMIER AT GASOLINE STATION IN MINNEAPOLIS



C. M. RAWITZER'S CAR WHICH CAUGHT FIRE DURING PARADE

which was entirely covered with white material tufted to conform with the body contour. All of the passengers were dressed in white.

In the children's class first prize went to an American roadster entirely covered with white and purple tufted material with purple lights strung along the sides and rear. On the front of the radiator was an immense capital "G" in electric lights in honor of the Glidden tourists. The car was driven by B. Fawkes and the prize was a camera.

#### Woman Wins a Prize.

For the best decorated car driven by a woman, a cut glass punch bowl and glasses were presented to Miss Ethel Cosgrove, who had a Maxwell handsomely trimmed with white flowers, with swans perched on the radiator. From the rear projected the stern of a canoe in which sat another young woman dressed in white, and holding a paddle studded with small electric lights.

The decorations of the other cars were

varied, American flags and bunting being the more popular. In the truck department a great variety was seen. The most gorgeous was one decorated by a local florist, the scheme consisting of a huge fountain in the center of the truck platform and over which was a canopy framework draped in cut flowers. The Michelin tire representative had a large truck on which were the Bidendum twins, who rolled from side to side and kept the crowds cheering continually. A unique truck feature was a complete Bowser gasoline storage outfit mounted on a truck platform showing the entire system from storage tank to pump.

Only one untoward incident occurred, that of a fire to one of the handsome cars, driven by the daughter of C. M. Rawitzer. The red roses caught the blaze from the lamps and quick work was necessary on the part of the young women in the machine to escape. It was too badly damaged to continue in line.

The judges were Charles J. Glidden,

Frank B. Hower and Colonel W. W. Brown, president of the Vermont Automobile Association and a passenger with Frank Wing in his Marmon car.

#### Another Outing Sunday

On Sunday the tourists were given still another kind of an outing. At 9 o'clock several scores of cars were brought to the headquarters by their owners, and all the Gliddenites in sight were taken out to Lake Minnetonka for a sail on the beautiful body of water. Dinner was taken at the Tonka Bay hotel, and once more the cars were pressed into service to convey the guests to the country club for a buffet supper.

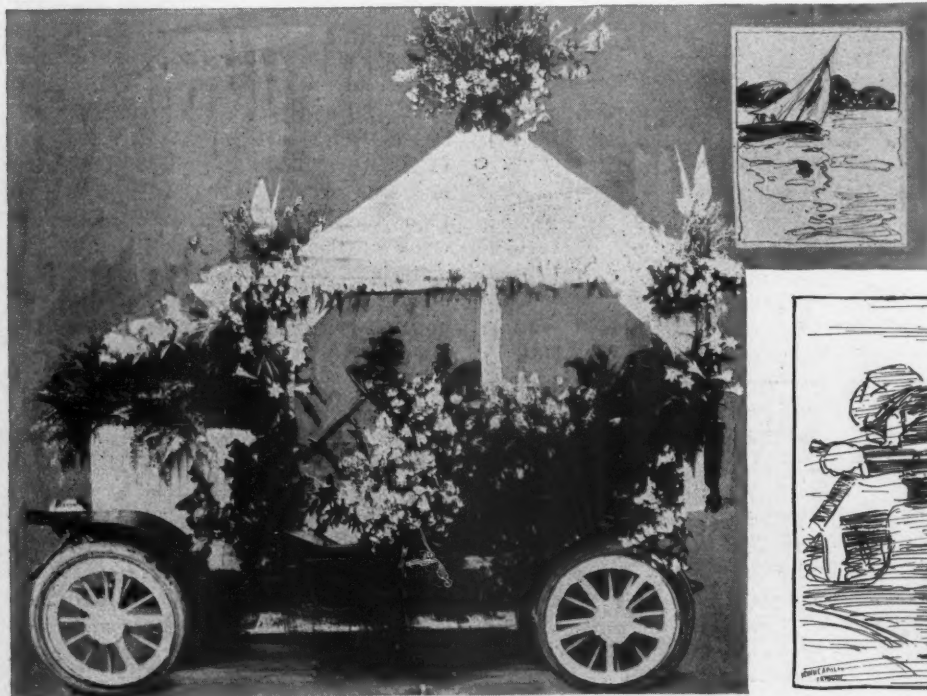
#### Condition of Cars

Minneapolis, Minn., July 16—With the checking-in of the cars this afternoon at the Plaza hotel the present Glidden tour is one-third over, that is, one of the 3 weeks over which the run extends is finished. By actual count of days 5 of the 15 running days are over and 822.7 miles of the total 2,636.8 miles have been covered at an average pace of 20 miles per hour for the class A cars and from that down to 18 miles per hour for the class E cars, which are vehicles selling for less than \$999.

Although the tour is one-third over it is not expected that one-third of the total penalties that will be recorded on the arrival at Kansas City has been chalked up against the cars. As in previous years, the last few days will be trying ones on many of the machines that have been able to withstand the heat and brunt of the ordeal and some may succumb towards the end, it being another case of the last straw that breaks the camel's back. So far the cars have all made a most creditable performance, in fact, much better than was expected when the motorcade pulled out of Detroit.

#### Nine Are Penalized

Of the thirty cars that started on the Glidden-Hower-Detroit tour nine, or scarcely one-third, have suffered penalties in one-third of the test. But two have had trouble among the thirteen Glidden cars, and these have been due to two broken fender irons and a mud apron which struck a water breaker, pressed against the flywheel and had to be ham-



MISS WHITTED'S CAR, A PRIZE WINNER



DAI LEWIS ARRIVES



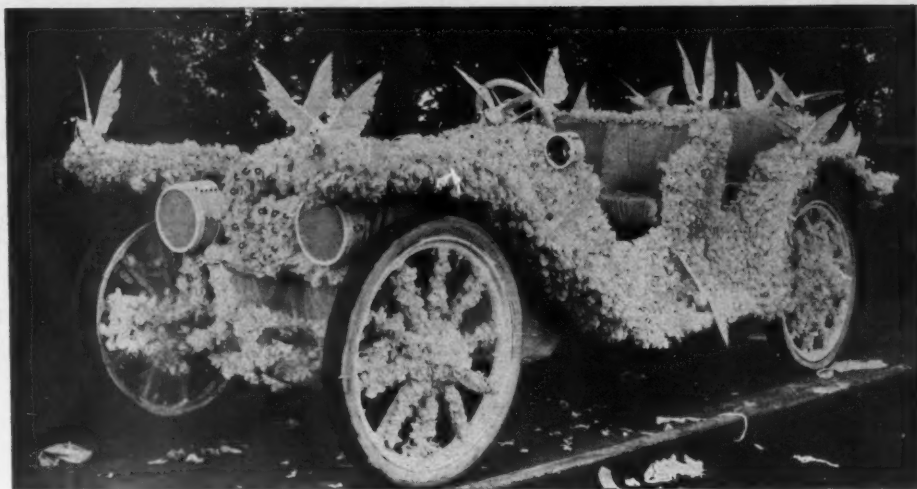
mered back into place. Not one of these incidents or happenings has had any effect on the running of the car, in that the motor and its varied accompanying systems, and the entire transmission system were not in any way injured. This is a truly remarkable performance for over 800 miles of roads that have been treacherous in many ways, due to hidden rocks buried in the sand and dust, to bad bridge or culvert approaches, to water breakers and miles upon miles of long sandy stretches. Bravo to the Glidden contesting cars, for they are doing nobly!

#### Situation in Hower Camp

The Hower contestants, namely the runabouts, are not faring so well, for of the fourteen that started seven already have received penalties. Fifty per cent penalized in the first third of the tour is too many, but of these seven four are low-priced, low-powered runabouts which have had to travel on too fast a schedule as compared with many of the Glidden entrants. With the Hower runabouts the penalties have been more directly connected with important parts of the cars: Two have had trouble with connecting rod bushings in the motor, one stripped a transmission gear and one had steering gear trouble and withdrew because of being ditched. Against this list of what might be termed serious troubles comes a list of minor ones, such as breaking a petcock, breaking a spring clip and having to adjust a ball bearing in a road wheel. It never was expected that the Hower cars would show up so well as their bigger Glidden brothers for the reason that many are lower-powered machines and not a few are driven by men who have not had previous experiences in long-distance touring. But one car has a time penalty but no labor demerits. The highest honor goes to the Detroit trophy toy tonneau cars, of which three are contending. So far not a single point has been recorded against one of this trio and it would be a most commendable performance if all three could reach Kansas City with clean road records.

#### Few Spring Troubles

A great contrast of the mechanical troubles so far this tour as compared with previous tours is the entire freedom from spring troubles. There has not yet been



FAWKES' CAR. WINNER IN CLASS DECORATED BY CHILDREN

recorded a single case of breaking spring leaves. In previous Glidden tours in the first 3 or 4 days many cars have suffered; but it appears that the past experiences have had a valuable effect on this part of the car and all the makers have seen to it that springs are made adequately strong. So far only one wheel has been broken and that on a press car. Last year had several examples of broken wheels. Wheels are heavier this season. In the majority of cars the I-beam front axle is used and not a single one as yet shows any results of the experiences with water breakers; in fact, in looking over the cars each morning as they check out it is remarkable how spick and span they all appear. The fenders are in place, the bodies not dented, wheels are running true, no odor of burning brakes has been discovered, and, in fact, many of the high-priced machines have not taken on a drop of water since leaving Detroit. It is remarkable how little work is done on the

cars before checking in each night, in fact nothing is permitted but the regular oiling of all the parts, there being penalties imposed for repairs and adjustments of any nature.

#### Drivers Doing Good Work

It is proper to give great credit to the improvements in the cars, but the drivers must not be overlooked. The veterans such as Teddy Dey, Frank Wing, W. Winchester, Webb Jay, H. Hammond, J. S. Williams and G. G. Buse, Jr., are taking no chances because each sees a possibility of winning the Glidden trophy himself. Last year it was won by a team of three men with three cars, but this year it will be won by one driver and his car. This new phase of the rules adds additional interest, and each driver realizes that it entirely depends on himself whether he wins or loses and that he cannot be prevented from winning by a teammate who may have been running in hard luck. This is most commendable.



C. J. GLIDDEN AMONG THOSE PRESENT



CAR DECORATED AND DRIVEN BY MRS. J. N. JOHNSON

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## The Selling Potency of Good Roads

A VAST percentage of the motor car dealers in sections of the country where roads are poor are not doing the part they should in propagating the movement for procuring better roads. In these sections the initiative, where it has been taken, has been taken by others than those connected directly with the selling of motor cars and who are doing the work because of the inevitable benefit it will bring to the motor industry and not for any remuneration they may expect to obtain from it. In the end the big benefitters in the good road movement will be the sellers of motor cars and the owners of such cars. With better roads more cars will sell, selling will be easier because of the reduced cost of tire upkeep and cars will increase in popularity because of the reduction in maintenance directly caused by road improvement. To a great majority of dealers the road improvement idea may not appeal because its results do not come the week after the money has been donated or the effort made; but come it will sooner or later and those dealers who assist in bringing about a crusade for improved roads will undoubtedly be the first to benefit. The motor car dealer who only looks for the selling of this year's output may not be expected to grasp the magnitude of the impetus good roads will give to the selling of motor cars but that dealer who is in the business for a life time will soon realize that the deep streams invariably contain the most water and from good roads greater sales will issue. There are roads in the fertile agricultural districts of Iowa and Minnesota which can only be used in certain months of the year and are impassable to motor and horse vehicles in other seasons. Every day a road is not open to traffic that district is suffering a loss; the merchants in that district are losers and those people engaged in selling motor cars are also losers. If those engaged in selling cars have not the wherewithal to aid by donations the good road funds they can actively support the leaders of the crusade in their attempt to obtain state appropriations for roads and in so doing they are directly increasing the business, not for that day but certainly for a time not one year after the good road work begins. Motorists in states west of the Mississippi as well as others in the south should particularly interest themselves in this work. They should join with others in promulgating the cause of good roads, for it is by everyone putting his shoulder to the wheel that the greatest good is accomplished.

### A Small-Car Tour is Needed

THE first half of the Glidden tour has sufficiently demonstrated the unfairness to the small car of running it on a tour over the same distance that big cars are expected to go and with but an hour additional time in which to make the distance. Those who are at all familiar with country touring know that a high-powered car is capable of averaging 20 miles per hour with ease on mediumly-good roads; but that for a distance of 200 miles, adding but 1 hour to this for the little cars makes them travel it at a pace just 1 mile an hour slower. The little car has to travel very fast to average 19 miles per hour and going at that average is much harder on it than it is for its big brother to average 20 miles per hour. The little cars have given a poor showing in the present tour and the conditions suggest a special tour for cars selling below the \$1,200 mark. The fact that two or three small cars have not shown to advantage is not going to injure the small-car situation in any respect; but it would be but proper to give the small cars a tryout among themselves and run them through new territory in which the small car is the forerunner of the big five and seven-passenger machines. A tour of this nature extending over 8 or 10 days could embrace the most fertile tracts of three or four adjacent states and would prove a wonderful stimulant to the industry in that the small car is a great seller of big machines. Ohio, Indiana and Illinois would furnish a good field for a tri-state tour and Minnesota, the two Dakotas and Wisconsin are equally good territory for another one. Such an affair need not be national in character such as the Glidden in which the trophy is up as a sort of a free-for-all prize; but it remains for some enterprising club to arrange such a contest, giving the small-car a chance all by itself, where it might not suffer from possible comparisons with its big brother who has the advantage when a stiff schedule is maintained and speed is the keynote of the proposition. Put in a class by itself that way, and with a schedule better suited to its possibilities, there is no reason why the small car should not thoroughly convince the public of its stamina by a demonstration such as would be possible in a tour.

### Some Glidden Tour Observations

THE Glidden tour is one half over and the daily reports show that American-made cars are demonstrating their reliability to a remarkable extent. Many of them, nearly 70 percent, have been going for 8 days without an adjustment of any nature and are still performing in perfect condition. This running from day to day without an adjustment must be looked upon as a supreme test for in what other department of transportation can a parallel be discovered? The railroad locomotive is run into the roundhouse after every 250 miles of travel and is cleaned, adjusted and necessary repairs made. Other conveyances are equally carefully looked after, yet on the Glidden tour the cars must go 15 days without an adjustment. In short tours of 500 miles or more it has been found imperative to prohibit adjustments in order to select a possible winner or draw comparisons among various machines, but in a 15-day tour a little greater leniency would be welcomed by many participants. As it is, the test is a severe one, but the motors, the transmissions, the steering mechanisms and the rear axles are showing unexpected reliability, in fact there are few cases of trouble in these vital parts of the cars. The tour is demonstrating beyond a doubt that the motor cars in the tour are doing what no other vehicle of transportation could accomplish in the same time and with as little trouble. The tour is proving the absolute dependability of cars and the thousands of people, not owners, who see the machines pass by on their daily grind cannot but see the ultimate—that day when farmers will till their vast acres with the gasoline plow, when the same power will transport their grains to the warehouse and when in short the gasoline engine will thresh their grains, grind their corn and work their own machinery. One can easily read the handwriting on the wall at the present time and particularly has the Glidden brought it out that we are in the gasoline era. The motor car has most effectively shown the people of the United States the possibilities of the gas engine and it ought not to be many years before the hardest part of the farmer's job will be to drive to town and collect the money gasoline has made for him.



# EUROPE CUTTING RED TAPE FOR MOTORISTS

PARIS, July 7—Europe has a scheme in hand which, if carried to completion, will make touring through her various countries a matter of less formality than motoring through the various states of the union at present. Under the present regulations it is necessary to have as many driving licenses, as many registration numbers, and pay as many entry fees as there are countries in which you desire to travel. If the new scheme is carried through a driving license issued by any European country will be recognized in every other country; a car registration in one land will be good for all other lands; finally, the deposit of one sum will procure an international triptyque, admitting to all European countries the sum being returned on the car's return to its native country.

America has as much reason to be interested in the scheme as Europeans, for her citizens form a very respectable percentage of the international tourists who skim over the highways of France, Germany, Italy, England, Holland and Austria. Curiously, however, America is the only nation that is out of the scheme; it is more than probable, however, that it will be admitted shortly.

## Germany Originates Scheme

The idea of simplifying touring regulations originated in Germany in 1907, the German authorities suggesting to the French that as they were at the head of the motoring movement they should call a conference of the leading powers to deal with the subject of international regulations. The French government accepted the proposal, and in due time invited government officials of other countries to meet them and talk over this subject. Other nations became interested, asked to be admitted, and were admitted, with the result that the proposed conference was postponed on several occasions. Now every nation in Europe, without a single exception, is enrolled in the scheme, and should have met in Paris this week, at the ministry of foreign affairs, had not Belgium and Holland asked for a postponement, which was granted, the revised date being October 5.

## Points To Be Discussed

Three main points will be brought before this meeting of the nations. It will be proposed that the driving licenses of any nation shall be accepted by all other nations. At present most European countries issue driving licenses only after a practical examination. The exceptions are Belgium, which has no special regulation, and England, which is only interested in receiving the registration fee, and does not care a rap about the applicant's ability to handle a car. France will accept the British Royal Automobile Club's certificate and the Motor Union's license as proof that the holder can drive a car, but

## Foreigners Would Make Registration of Tourists in One Land Good in All Countries

of course will not accept the British government's license. Germany will accept the French license providing it is endorsed by a German consul, but not otherwise. An American driving license would not be accepted anywhere in Europe.

After each nation has put its house in order and instituted a driving license issued only after examination, as in France, Germany and Italy, it is proposed that such license shall be recognized by all the countries of Europe without further examination or formality. Here America is directly interested, for a tourist who is going to do the continent would only have to obtain one license for all the countries he intends to visit. If America comes into the scheme, even its license may be recognized by European countries.

## Regarding Registration Numbers

A similar arrangement is proposed regarding registration numbers. At present, if driving in France you must carry French numbers, though you are not called upon to pay French fees. If you tour in England you must carry English numbers and pay full fees whether your stay is one of 6 hours or 6 months. In Belgium you hook on that country's number in addition to your own. In some other countries the customs officers give temporary numbers that must be attached and maintained while touring in that country.

The object of the conference is to devise a scheme whereby one registration number will be accepted all over Europe. It is not a difficult task, providing each of the contracting parties will undertake to look after the few black sheep that are to be found in every community. Here again America is directly interested, for whereas a United States number is sometimes admitted to be used in France for a short period—the holder being given a certificate to that effect to save trouble with the police—under the new scheme such a number would always be admitted, not only in France, but in all European countries.

The question of an international motor passport, as suggested by the Touring Club of Italy, is even more important. Under the old method of touring it was necessary to deposit the duty on a car on entering the country, the amount being returned on leaving. The result was that plenty of gold had to be carried in the coinage of the land the motorist was about to enter, and there were long delays when leaving the country, for unless the station was an important one the officers never had the amount of cash on hand. This, of course, was repeated for every country visited. At the present time the motorist can deposit the customs duty with the Touring Club

of France, and various other organizations, even before leaving his home land, receiving in return a triptyque which admits him free and without formality. A separate triptyque must be returned for each country about to be visited, and separate fee deposited, the amounts being returned either at the central office or through the holder's banker at home.

Under the Italian Touring Club's scheme there would be but one triptyque for the whole of Europe, the amount to be deposited being that of the country with the highest duty. This amount would be deposited with the home authority on issuing the triptyque, and only returned when proof had been given that the car had been brought back to the country of its origin. In the meantime it might pass through half a dozen different countries without depositing a cent.

This scheme also interests Americans more than any other nation, for they travel in more different countries than the average European, who as a rule is content to confine his operations to one land at a time.

The important point about the conference to meet in the fall is that it is not composed of delegates from motoring and touring clubs, limited to the expression of their ideas on what should be done, but is made up of official delegates appointed by the various governments, having power to vote in favor of any practical scheme that is suggested.

## America Awakening

New York, July 19—"Announcement by Governor Fort, of New Jersey, that there is a movement on between that state, New York, Pennsylvania, Connecticut and Massachusetts to adopt motoring regulations applicable in each state and to have the license numbers of each state good in the other states, is indeed interesting," says S. H. Mora, treasurer of the American Motor Car Manufacturers' Association, and president of the Mora Motor Car Co. "If this movement can be brought to a definite basis it will mean much toward the adoption of a federal bill which is the goal of all motorists. Governor Fort is doing much to wipe out the bad name which New Jersey has had with motorists. It is commendable work on the part of his excellency and he should have the backing of all motorists and legislators who stand for a square deal and who are opposed to class legislation. If the five named states can get together in this matter, there will be increased touring and with the increase of motoring parties, hotel men and merchants will be greatly benefited in the above named states. If these commonwealths can work in harmony and have uniform motor car regulations, certainly other states can and the national government eventually will be compelled through public opinion to pass a federal bill."

# DE LUXE PLANT SOLD TO E-M-F INTERESTS

**D**ETROIT, MICH., July 17—Another important change in Detroit's motor car manufacturing industry was announced this morning in the purchase of the entire plant of the de Luxe Motor Car Co., situated at West Jefferson avenue and Clark, by the E-M-F-Studebaker interests, President Walter E. Flanders, of the Studebaker-E-M-F, completing the deal and a sum of money estimated at \$800,000 changing hands. The purchasers were given immediate possession and on Saturday a force of 150 men was put to work on the de Luxe plant, making the changes demanded by the changed uses to which the building and a large part of the machinery will be put.

At the time of the merger by which the Studebaker interests secured a large interest in the Everett-Metzger-Flanders Co., Messrs. Everett and Metzger retiring from the firm, the announcement was made that the combination was desirous of securing in Detroit a plant at which a light runabout could be manufactured in large numbers. This is the purpose to which the new factory will be put and the product will be marketed as the Studebaker-Flanders Twenty. The factory management will be in the hands of Mr. Flanders who, as an organizer, is considered locally as one of the most pronounced successes in the industry. Mr. Flanders states for publication that the company has the model which will be manufactured, already designed, and that 25,000 of them will be marketed next year. The new car will give the Studebaker interests virtually a complete line—the Studebaker-Garford as a high-powered car, the Studebaker-E-M-F as a light car and the Studebaker-Flanders for a light runabout. The firm also manufactures trucks and a full line of electric, the idea being to provide distributors with a line of cars which will supply any sort of demand.

The de Luxe plant is an ample one and covers about 6 acres with a total plat of 15 acres figuring in the deal. The land is on the grade of the Wabash railroad, which runs past the plant and provides excellent shipping facilities. A large portion of the machinery can be used in the production of the light car, it is said, and the firm will manufacture as many of the de Luxe cars as seem to be in demand.

With the announcement of the deal comes the statement that neither President Daniel W. Kaufman, of the de Luxe Motor Car Co., nor any of his partners in that venture will be interested financially in the new firm, the deal having been one for cash and embodying no stock whatever.

The Clark avenue district is coming into considerable prominence through the result of the deal, and the fact that, just across the railroad tracks, the new plant of the Timken-Detroit Axle Co. has just started operations. This latter concern

is a sister plant to the Timken Roller Bearing Co., located at Canton, O., and is already at work, filling orders for the 1910 trade. The factory is an ample one and the entire investment comprises in the neighborhood of \$1,000,000 and is employing 1,200 men. The plant will be devoted almost solely to the manufacture of axles for motor vehicles. This plant fronts on Clark avenue, but is adjacent to the factory just purchased for the manufacture of the Studebaker-Flanders Twenty. The active management of the factory is in the hands of A. R. Demory, second vice-president and factory manager; E. W. Lewis, secretary and treasurer, and H. W. Alden, chief engineer. The company already has contracts for 26,000 sets of axles and expects to supplement these by large additional orders.

## COAST ROAD RACE TIMES

Los Angeles, Cal., July 17—Official reports of the Santa Monica road races show that eight cars finished in the big 202-mile race for the Ferris cup and that four crossed the tape in the light-car event for the Shettler cup at the same distance. The following shows the car and driver, the number of laps each went—there being twenty-four laps in each race—and the time of each:

### FERRIS CUP

Pos.	Car and driver	Laps	Time
1	Apperson, Hanshue.....	24	3:08:03
2	Chadwick, Seibel.....	24	3:15:30
3	Stearns, Free.....	24	3:19:52
4	Locomobile, Page.....	24	3:21:15
5	Stoddard-Dayton, Siefert.....	24	3:24:32
6	Studebaker, Lord.....	24	3:26:40
7	Franklin, Hamlin.....	24	3:29:57
8	Pope-Hartford, Scott.....	24	3:37:04
	Lozier, Tetzlaff.....	21	3:13:18
	Premier, Bradbeer.....	20	3:06:39
	Haynes, Shannon.....	13	2:10:49
	Thomas, Huber.....	10	1:20:52
	Rambler, Harvey.....	10	1:43:09
	Chalmers-Detroit, Dingley.....	7	1:54:05
	Columbia, Stone.....	2	17:57:00

### SHETTLER CUP

1	Chalmers-Detroit, Dingley....	24	3:38:40
2	Stoddard-Dayton, Siefert....	24	3:42:45
3	Buick, Nikrent.....	24	3:49:30
4	Maxwell, Smith.....	24	3:53:35
	Mitchell, Greer.....	21	3:26:54
	Cadillac, Christopherson.....	18	3:10:18
	Regal, Hager.....	20	3:49:32
	Studebaker, Breig.....	13	2:23:01
	Durocar, McKeague.....	19	3:08:21

## ATLANTA MAKING SHOW PLANS

Atlanta, Ga., July 17—The city council is going to close up one busy Atlanta street and roof it over to make space for the national motor car show in November. Early this week S. A. Miles, general manager of the National Association of Automobile Manufacturers, came to Atlanta to tell the local chamber of commerce and the Atlanta Automobile Trades Association that, despite the fact that Atlanta has the newest and largest auditorium of the south, it was going to be only slightly more than half large enough to hold the exhibitors who were just pining to show their wares in Atlanta. Not a bit dismayed, the city council is getting ready to give a special permission to the backers

of the show to close up Courtland street and one of the sidewalks for the use of the run-overs who cannot be accommodated in the Auditorium armory. All of this street that runs beside the Auditorium will be roofed over with canvas and exhibits placed there. Mr. Miles expressed an opinion that if space could be secured nearly 100 exhibitors would be in Atlanta for the first southern show.

## LOWELL ISSUES BLANKS

Lowell, Mass., July 19—Entry blanks have been issued by the Lowell Automobile Club for the "second national stock chassis competition of the American Automobile Association under the auspices of the Lowell Automobile Club." The race is for the Lowell trophy and is to be run over the Merrimac valley course, 10.6 miles around, the total distance of the race to be 318 miles, or thirty laps. The event is open to stock chassis of 451 to and including 600 cubic inches piston displacement. The minimum weight is placed at 2,400 pounds and the entry fee for each car is \$400. Entries close August 14 and the race is to be run September 6. In addition to the Lowell trophy there are to be four cash prizes—\$1,000 to the winner, \$500 to second, \$300 to third and \$200 to fourth.

## MITCHELL'S ANNUAL JUBILEE

San Jose, Cal., July 17—Mitchell car owners from all over the state of California foregathered at San Jose this week in the third annual jubilee. Over 500 cars with their owners' families were in attendance and the affair was the most successful since the inauguration of the event. A great program of car trials, races and a hill-climb had been arranged and in the evening the motorists were given a banquet by the Mitchell Motor Car Co. The races and hill-climb attracted a great deal of attention, because many women entered the contests and proved that they could handle the cars practically as well as men. In the hill-climb especially many women went along as passengers, W. H. P. Hill, of Pacific Grove, one of the prize-winners, being accompanied by his wife. Miss Marion Walcott, of San Francisco, won first prize in the woman's class in 1:19%, duplicating her victory of last year. Mrs. F. W. Kettleman, of Stockton, was second and Mrs. W. H. P. Hill third. In the touring class for old models everything previous to 1909 being eligible, L. P. Brassey won in 1:06, with J. Ghiradelli, of Oakland, second, and E. P. Lion, of San Jose, third. In the runabout class, old models, Newell Forest, of Oakland, won in 1:23%, with C. E. Anderson, of San Francisco, second, and J. W. Winn, of Oakland, third. In the professional class, W. D. Davis, of Oakland, won in 1:13%, with R. L. Skinner, of Sacra-



mento, second, and Oscar Osen, third. The handling of the hill-climb was most perfect, details being carried out by President William Mitchell Lewis and G. Vernon Rogers, of the Mitchell Motor Car Co., assisted by A. E. Hunter and George Olsen, agents for Mitchell cars in northern California. The judges were A. H. Martin, Dr. J. L. Benepe and George B. Polhemus, officials and members of the Santa Clara County Automobile Association.

#### PARRY WILL BUILD CARS

Indianapolis, Ind., July 19—Plans for what probably will be one of the largest motor car plants in this city are under way and a car to be known as the Parry will be manufactured. It is expected that within a few days articles of incorporation for the Parry Motor Car Co., with an authorized capitalization of from \$500,000 to \$1,000,000 will be filed. The president of the new company will be David M. Parry, for 27 years president of the Parry Mfg. Co., manufacturer of horse-drawn vehicles. A few weeks ago Mr. Parry resigned as president of the carriage company and although he still retained his extensive holdings he declined at that time to make known his future plans. Mr. Parry is fairly well known to the motor car trade by reason of his former connection with the Overland Automobile Co. He was one of the principal stockholders at the time the concern was taken over from the company which was headed by Claude Cox. Some months ago Mr. Parry disposed of his interests in the Overland company. In discussing plans for the new concern Mr. Parry said the energies of his company for the present would be devoted to two models. One of these will be a two-cylinder runabout, rated at about 20-horsepower. The second model will be a five-passenger, four-cylinder, 30-horsepower touring car. The organization of the mechanical and sales forces is being perfected. Orders are being placed for machinery and the erection of the factory buildings will start as soon as a suitable site can be selected.

### Chicago Chauffeur Wins Winton Upkeep Contest

Cleveland, O., July 17—Awards have been made in the second annual upkeep contest of the Winton Motor Carriage Co. in which the competitors are made up of drivers of Winton sixes. Last year's event was won by Frank Schneider, of New York, chauffeur for Milton Schnaier, who drove his Winton 11,083 miles in 7 months at a total upkeep expense of \$12. This year's winner made Schneider's mark look big, for G. W. Butler, chauffeur for J. E. Clenny, of Chicago, who captured the first prize, \$1,000, drove his car 17,003 miles in 8 months up to June 30, when the contest closed. He reported that he did not spend a cent on upkeep and so the judges awarded him the first prize. John J. Boyce, chauffeur for Isaac Bacharach, of Atlantic City, N. J., went 11,000 miles at an expense of 30 cents, while W. L. Losee, driving for G. W. Frost, of Verona, N. J., covered 10,595 miles at no expense for upkeep.

Comparing the first and second contests, it is noted that in the 1908 event the ten prize-winning cars covered 65,687.4 miles in 61 months, averaging 1,076.8 miles per month per car. The total upkeep expense was \$15.12½, averaging \$1.51 per car, or 25 cents per month per car. The 1909 summary shows a total mileage of 118,503 miles or an average mileage per car per month of 1,500 miles. The total upkeep expense was \$127.30 and the average upkeep expense per car per 1,000 miles was \$1.07. Following is a summary of the awards just made:

First prize, \$1,000—Won by G. W. Butler, chauffeur for J. E. Clenny, Chicago. Distance, 17,003 miles. Upkeep expense, none.  
Second prize, \$500—Won by John J. Boyce, chauffeur for Isaac Bacharach, Atlantic City, N. J. Distance, 11,000 miles. Upkeep expense, 30 cents.  
Third prize, \$250—Won by W. L. Losee, chauffeur for G. W. Frost, Verona, N. J. Distance, 10,595 miles. Upkeep expense, none.  
Fourth prize, \$150—Won by J. Walter Tracy, chauffeur for T. N. Barnsdale, Pittsburgh. Distance, 15,669 miles. Upkeep expense, \$31.15.  
Fifth prize, \$100—Won by Arthur Donovan, chauffeur for Jacob Axelrod, New York. Distance, 17,720 miles. Upkeep expense, \$60.

Sixth prize, \$100—Won by L. Avenmarg, chauffeur for Loftus Cuddy, Cleveland. Distance, 8,728 miles. Upkeep expense, 30 cents.  
Seventh prize, \$100—Won by William Richards, chauffeur for William Burnham, New York. Distance, 8,702 miles. Upkeep expense, none.

Eighth prize, \$100—Won by John Wilson, chauffeur for W. B. Martin, Cleveland. Distance, 10,726 miles. Upkeep expense, \$7.50.

Ninth prize, \$100—Won by Miles Fellers, chauffeur for W. B. McAllister, Cleveland. Distance, 10,788 miles. Upkeep expense, \$26.55.

Tenth prize, \$100—Won by Harry Rosander, chauffeur for H. W. Mallen, Chicago. Distance, 7,572 miles. Upkeep expense, \$1.50.

#### NEW ALGONQUIN CARD

Chicago, July 19—There has been a revision of the program of the Chicago Motor Club for its annual hill-climb at Algonquin, Ill., August 5, and instead of classifying by piston area as has been done for the past 3 years the A. A. A. classification scheme will be followed, both piston displacement and price classification being used. In addition to the usual A. A. A. events the Chicago Motor Club has been given permission to add climbs for motor buggies and electrics, which are not provided for in the A. A. A. card. The revised card is as follows:

Class A—Open to any stock car fully equipped and governed by the following prices, winner to be the car making the fastest aggregate time for both hills: Division 1, \$4,000 and over; division 2, \$3,001 to \$4,000; division 3, \$2,001 to \$3,000; division 4, \$1,251 to \$2,000; division 5, \$851 to \$1,250; division 6, \$850 and under. No car shall compete in any division above than that to which its price entitles it.

Class A2—Same as class A except that the winner will be determined by the club formula.

Class B—Open to any stock chassis and governed by the following table of piston displacement and minimum weights, winner to be decided by time only:

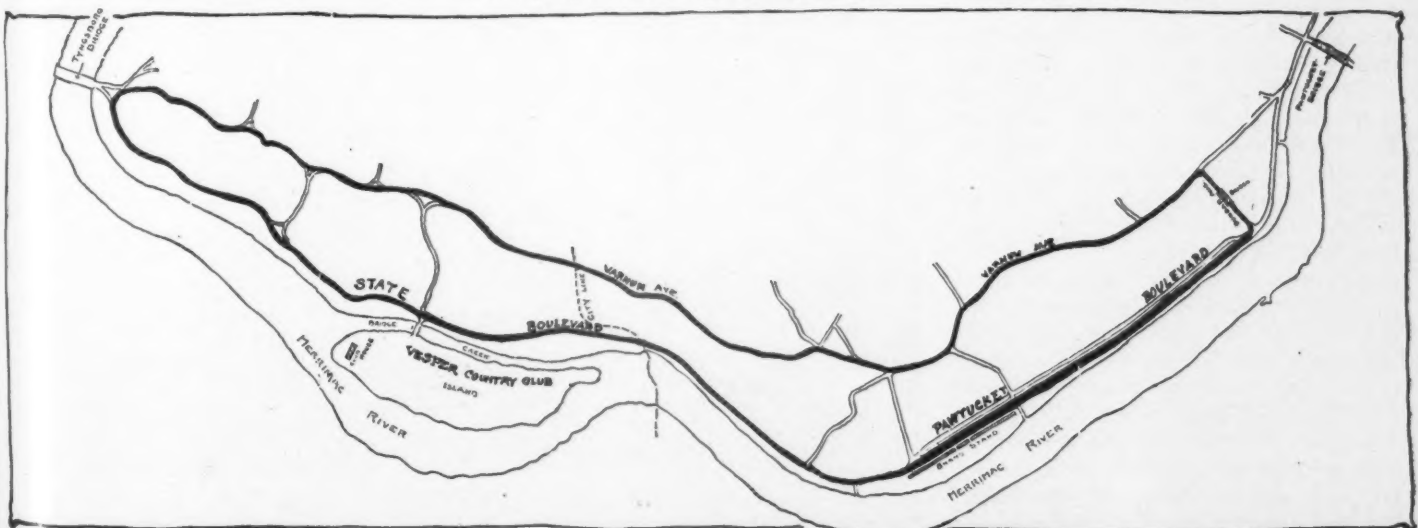
	Piston displacement	Weight
Division 1.....	451 to 600 cu. in.	2,400 lbs.
Division 2.....	301 to 450 cu. in.	2,100 lbs.
Division 3.....	231 to 300 cu. in.	1,800 lbs.
Division 4.....	161 to 230 cu. in.	1,500 lbs.
Division 5.....	160 cu. in. and under	1,200 lbs.

No car shall compete in any division above other than that to which its weight entitles it.

Class C—Open to any chassis made by a factory which has produced fifty cars, not necessarily of the same model, during the twelve months prior to the event, winner to be decided by time only.

Class F—The same as class C, but having the following limitations as to size: Division 1, for cars having a total piston displacement not to exceed 390 cubic inches; division 2, for cars having a total piston displacement not to exceed 202 cubic inches. Time to decide the winner.

Class G—Division 1, open to motor buggies, wheels 36 inches in diameter or over, with solid tires; division 2, open to electrics. Time only to decide the two divisions.



COURSE THAT WILL BE USED FOR NATIONAL STOCK CHASSIS ROAD RACE AT LOWELL, MASS.

## BELATED RESULTS OF HOLLAND'S BIG TOUR

**B**RUSSELS, July 5—How would an American act if he had to wait from 3 to 4 weeks—not days—for the results of the A. A. A. tour, or some other event of national importance? Well, that's what the brave Dutchmen—the Hollanders as they call them here—had to stand for after the annual tour of Holland. But, then, they are in no hurry with anything in Holland, and even the motor trade journals did not have enough enterprise or interest in the event to urge upon the promoters to publish the results.

The tour of Holland was held June 5 and 7, but it was only a few days ago that the sports committee of the Nederlandsche Automobile Club announced that an Oryx, a Darracq and a Star car had been awarded the highest prizes. The Oryx was the winner in class I, which included motor cars of not more than 7 horsepower and the Darracq and Star tied in class 2, which included cars of from 7 to 14 horsepower.

A regularity contest was the object of the tour which was promoted by the Nederlandsche club. On the first day the contestants went from Utrecht to Groningen, 130 miles, in four stages. The first one was to Apeldoorn—38 miles—and an average speed of 21.7 miles had to be maintained. For the second and third stages, from Apeldoorn to Zwolle—30.3 miles—and from Zwolle to Assen—45.5 miles—the contestants had to average 18.6 miles an hour, while for the fourth stage from Assen to Groningen—16.2 miles—a 20.5 miles gait had been imposed.

There were thirty-two contesting cars, namely, four Spykers, four Germains, three Fiats, three Stars, four Oryx, three Darracqs, two Humbers and one each of the following makes: Itala, de Dietrich, Sizaire & Naudin, Miesse, Hansa, Renault, Clement-Bayard, Adler and Brasier. Among these cars was the Spyker, which started in the Pekin-Paris contest, and a Darracq, which had taken part in this similar tour of Holland in 1906.

The run to Apeldoorn was made without a hitch. All the contestants had to make a 30-minutes' halt before they started for Zwolle, where a stop of 1½ hours was made for dinner. June 6 was spent in Groningen, the day's feature being the gymkhana. The various events were interesting to the large crowd of spectators. All told thirty-eight cars took part in the various events, the winners being a German and two Oryx cars.

The return journey to Utrecht was made June 7 over a different route than the one used on the first day. Again the day's run was divided into four stages, totaling 137.8 miles. The first stage was from Groningen to Gieten, a distance of 17.5 miles, for which an average rate of 16.7 miles an hour was imposed. From Gieten to Coevorden, 29.2 miles, the contestants had to maintain a speed of 20.5 miles per hour. From Coevorden to Katerveer, 34.7

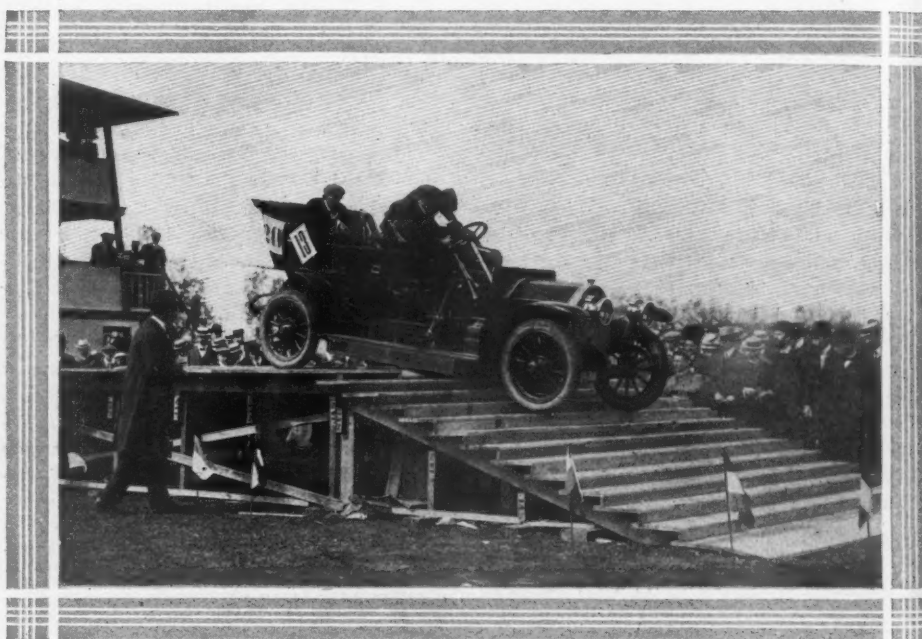
miles, a pace of 18.6 miles was imposed and for the run from Katerveer to Utrecht, 56.4 miles, an average speed of 21.7 miles was on the schedule.

One of the regulations of the tour was that in order to be qualified for the final classification, the contestants must participate in the gymkhana. Delays caused through tire troubles had to be reported by the observer to the tour officials as soon as possible after the car was laid up, otherwise it was penalized. During the time required to repair the tires no other adjustment of any sort to the car or body was allowed. At no time during the duration of the tour was it permitted for the cars of class 1—not over 7 horsepower—to average more than 18.6 miles an hour, and for cars

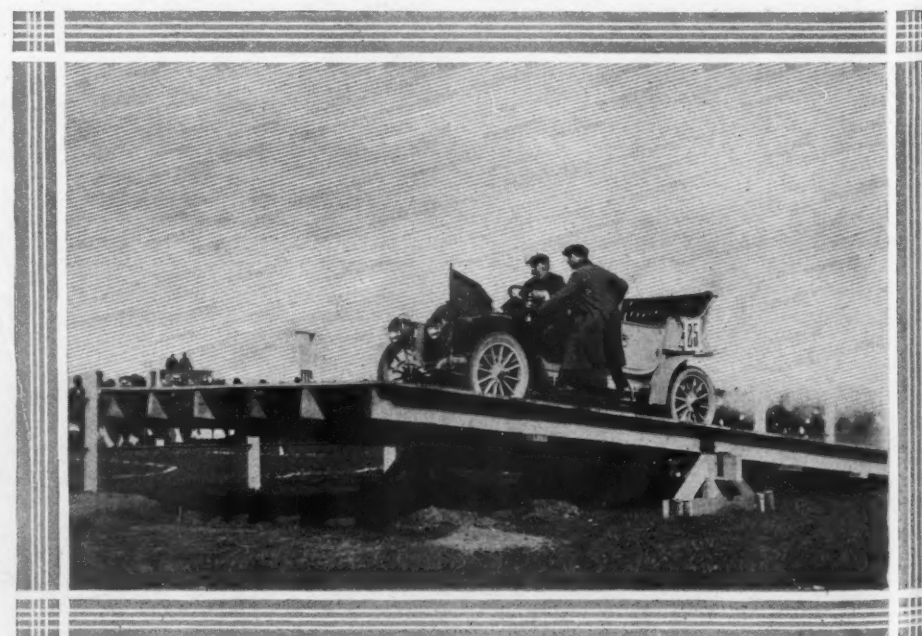
of class 2—from 7 to 14 horsepower—to average more than 22 miles an hour.

Any contestant who found out the classification of his car and who would make publicity out of this information previous to the official announcement having been made public by the Nederlandsche Automobile Club could have been disqualified, fined 100 florins and barred from future contests promoted by the club.

The final classification in class 1 was as follows: First and second prize to the two Oryx cars, third prize to a Spyker. In class 2 a Star and a Darracq each received a first prize, a Spyker and a Fiat both got a second prize and a Spyker, a Fiat and a Clement-Bayard each received a third prize.



HOLLAND'S GYMKHANA—DRIVING DOWN STEPS FROM BRIDGE



HOLLAND'S GYMKHANA—THE EQUILIBRIUM TEST



# ENGLISH BUDGET DISTURBS THE MOTORISTS

LONDON, July 7—Race meetings and reliability trials may come and go, but there is no doubt that the most important matter of moment in the English motoring world today is the budget which still hangs, like the sword of Damocles, over the heads of motorists, ready at a moment's notice to fall and crush them. On Friday of last week several deputations paid a visit to and were received by Lloyd George, the chancellor of the exchequer, with a view to obtaining at least some glimmer of hope that the hardships which his finance bill will impose on motorists of every denomination may be reduced to some extent. The most important of these deputations was that of the Motor Union, which was also accompanied by represen-

tatives of the Coventry chamber of commerce, and also delegates from the principal Coventry motor manufacturers. The deputation was introduced by A. E. W. Mason, M. P., the principal speakers being Earl Russell and E. M. C. Instane, manager of the Daimler Motor Co. The latter drew attention to the present unsound state of the British motor industry, only just showing signs of recovering from a severe attack of depression. Lloyd George, however, was adamant; he pointed out that the motor taxes were imposed not for national revenue, but for road improvements—which it should be noted the motorists never have asked for, nor do they at present require it—and that if the suggestion with regard to reduction of the

taxes which had been made by the deputation were to take effect, the sums so obtained would be so small that, while still acceptable for treasury purposes, they would be insufficient to make it worth while organizing and administering a central road fund. It had been suggested that when foreigners brought cars for touring purposes to this country, which resulted in money being spent in England, their cars should be exempt from taxation, and this suggestion Lloyd George considered a good one and promised to confer with his advisers as to the best way of doing it.

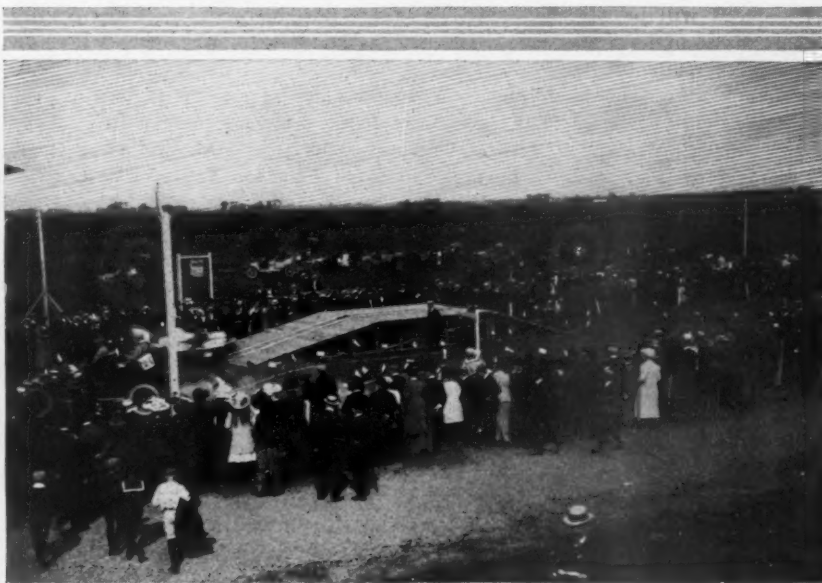
The entire deputation protested in the most vigorous terms against the method proposed for taxing cars by horsepower, and suggested that if the tax must be imposed then the best way was to base it on a certain sum per unit horsepower and not step the horsepower up into classes.

Even the Royal Automobile Club, which has acted as adviser to Lloyd George, thereby gaining much obloquy at the hands of most English motorists, is against the above unfair method, which it would seem can hardly go through. The real crux of the situation as regards the whole finance bill lies in the fact that if the lords throw out the bill and the country being then appealed to returns the present government to power, it will be a sure indication that the lords do not represent the will of the country.

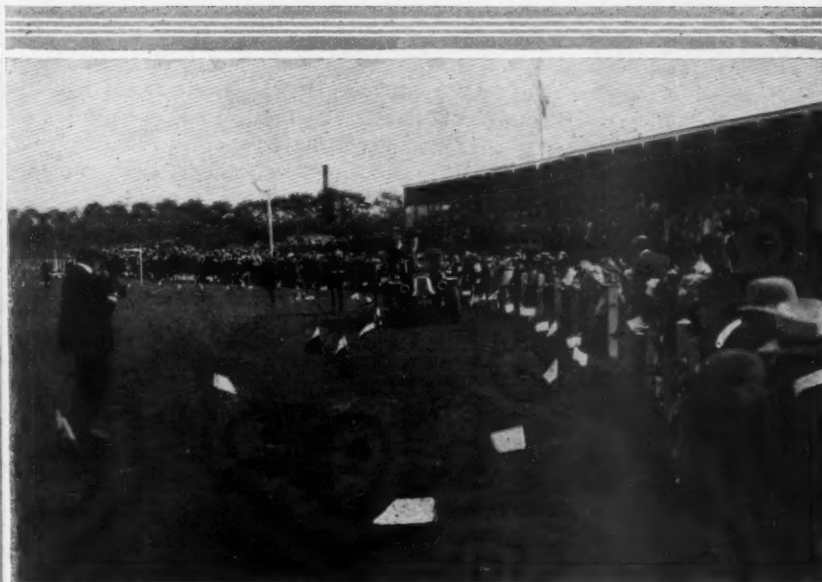
## MINOR EVENTS IN FRANCE

Nancy, France, July 5—Yesterday, on the occasion of the local exposition of the Automobile Club of Lorraine, the Nancy trophy was contested for by more than fifty motor cars and motor cycles. The winner was Hallut, who drove a 100-horsepower Mors racer and covered the flying start kilometer on a level road in 29 seconds and the kilometer uphill—the gradient averaging 9 per cent—in 48 seconds. His total time was 1 minute 17 seconds, the lowest among all contestants. In the class for racing machines Mathis in a 30-horsepower Fiat was second, his total time being only  $\frac{1}{4}$  second slower than that of the 100-horsepower Mors. In the class for touring cars he took first place, another Fiat of similar horsepower being second, only 1 second slower than the winner. There were twelve cars and eleven motor cycles as starters in the racing vehicles class, while in the class for touring vehicles there were twenty-three cars.

The annual climb up Val-Suzon was held a few days ago in the neighborhood of Dijon. The distance covered was 2.4 miles, the gradient averaging at the most 10 per cent. Two scores of cars and motor cycles tried for honors. The winner turned out to be Venus, who drove a six-cylinder Bayard-Clement racer of 120 horsepower. The time was 2:51 $\frac{1}{2}$ , which did not break the record established by the same driver last year and which is 2:45 $\frac{1}{2}$ .



HOLLAND'S GYMKHANA—GENERAL VIEW OF COURSE



HOLLAND'S GYMKHANA—THE FLAG STUNT

# Era of Motor Standardization Here, De

NEW YORK, July 19—That motor cars are standard and that few changes will be made in the models for 1910, is the statement made by Alfred Reeves, general manager of the American Motor Car Manufacturers' Association, on his return from the last of three trips occupying about 6 weeks that took him to sixty-one of America's leading motor car factories. He repeats his recent estimate of at least 200,000 as the 1910 production and says that while there will be no reduction in the price of the standard models there will be more given in a motor car next year than ever before. In other words, while the price of materials has been advancing the cost of manufacture is being reduced and the makers are making refinements that will bring out better cars without advancing prices.

A general review of the plans in motor cars for 1910 would indicate that improvements for next year will be confined almost entirely to the refinement of the present successful types. In the opinion of Mr. Reeves the time which has long been wished for when motor cars would be standard has about arrived.

## Tendency Toward Standardization

"In a general way," said Mr. Reeves, "I would say that the 1910 motor car will show a decided tendency toward standardization. The wonderful advances in gas engines during the past 10 years has brought the present type almost to the perfection point and improvements now must be almost entirely in the matter of details. While there will be some changes of models and designs by a few makers the inclination is to improve on the present satisfactory type of motor. The future may see some radical changes in car construction, but certainly not for a couple of years. The 1910 car will see those refinements which make for silence and simplicity in operation, increased power without increasing the size of motors, more pleasing design, greater riding comfort and lower maintenance cost.

"One of the most important changes will be the use of a longer stroke in motors. A number of makers are using the same size of cylinder whether they be for a four or six model, which makes for standardization. Magnetos are now in universal use, some makers not even supplying a battery. High-tension and low-tension magnetos are used, each having its followers.

## Changes for Next Year

"Among other changes for next year will be larger wheels and tires, a longer wheelbase, especially on the moderate-priced cars; the casting of cylinders in pairs and sometimes en bloc; the use of shaft drive, except on a small number of very large cars or buggabouts; the increasing use of the thermo-siphon system of cooling, and the adoption of a direct

drive on third speed in transmissions where four speeds are supplied.

"Most radical of all in the way of changes relates to the placing of the steering wheel on the left-hand side, which will be followed by two of the biggest producers next year and a number of smaller ones.

"In some cases motors are being cast with the exhaust pipe included. One maker will have only one pipe running from the carburetor to the motor, doing away with the manifold. Carburetors have been refined and studied with a view of securing more power and greater distance than heretofore.

"The design of bodies will be given more attention next year and the lines of the cars generally will be more pleasing to the eye. The use of ball or roller bearings is universal. While the four-cylinder motor continues to be the most popular a number of big cars and especially those of high power will be equipped with six-cylinder motors. While a number of the small makers have given up the six-cylinder idea, there has been an increased demand for six-cylinder cars among the big car makers, especially those who turn out the high-price machines.

"It is a revelation to visit those factories which constitute the membership of the American Motor Car Manufacturers' Association, to see the plans, the preparations, the new buildings and the many other things that not alone indicate a great production of motor cars, but a confidence in the business and the buying ability of the American public which should result in a record motor car year in 1910.

## Reeves' Visit to Factories

On the last of his three trips to the factories comprising the membership of the American Motor Car Manufacturers' Association, Mr. Reeves visited the concerns in Michigan and Wisconsin, which completed his round of the companies holding membership in the big organization of makers. More than sixty factories were included in his 6 weeks of travel.

"While I expected to see a whirl of industry at the Ford plant in Detroit," said Mr. Reeves, "I was not prepared for the great work which the big organization there is doing. So busy has it been turning out cars that no effort has been made to move into the new plant on Woodward avenue, and it is believed now that an entire new equipment will be put into that place instead of moving anything from the old factory. The model T cars are going through at a rate that would cheer the heart of any agent, the record being 1,954 cars during the month of June. They are now being completed at the rate of 450 to 500 a week.

"At the Brush runabout plant, Frank Briscoe, the president, stated that the

## Improvements Next Year Will Consist of Refinements of the Present Successful Types

business had so far outgrown the factory that a new plant would be put up, the dimensions of which will be 871 by 150, which he says will be the biggest single factory in the trade. The present plant has been working 21 hours a day for months, both in the place on Woodward avenue and at the addition on the Grand Trunk railroad. They will make about 2,000 of the little Brush runabouts this year and plan to double next year. There will be very few changes on the car for 1910, the present model having proven satisfactory in every way. In connection with the Briscoe Mfg. Co., which makes radiators, Mr. Briscoe told me that he bought half a million pounds of copper when the price was only a little above 12 cents, which puts him in a fine position for low manufacturing cost in the future. The Brush plant has ordered \$80,000 worth of new machinery.

"F. W. Haines, the manager of the Regal Motor Car Co., is planning a new addition to the Detroit plant which will be 217 by 54, four stories, ready for occupancy by September 1. The car has been eminently satisfactory this year and will have only a general refinement for 1910. The body will be changed somewhat and the wheelbase lengthened. The car has a sliding gear transmission on the rear axle. They are now turning out eighteen engines a day and have been working day and night since last November.

"Another concern in Detroit which is making rapid headway is the Grabowsky Power Wagon Co., of which Max Grabowsky is president and John Baker secretary. The company has doubled its capital so that it is now \$300,000, and is negotiating for a new factory site, although the present place on Champlain street will be retained. At the Hupp Motor Car Co. plans and preparations are under way for a record production next year to supply additional territory.

## Pontiac Important Point

"The city of Pontiac, which is about 26 miles from Detroit, is fast becoming an important motor car center, having four prominent factories. The Rapid Motor Vehicle Co. there has made gigantic strides during the past year or so. Morris Grabowsky, the secretary, showed me plans for a new addition 670 by 60, and another one 300 by 60. The company will install \$100,000 worth of machinery during the next 4 months. H. G. Hamilton, the president of the company, said they now have 22 acres of ground for factory purposes.

"The Welch Motor Car Co. is now interested with the General Motors Co., although the same management continues.



# Declares Al. Reeves, A. M. C. A. Chief

## General Manager of Independents Reviews Results of His Visit to Sixty-one Factories

A. R. Welch and Mr. Paek are planning to continue their big Welch cars next year, but in addition will organize the Welch Co. of Detroit, that will turn out a four-cylinder car. The new company will occupy the plant in Detroit formerly used by the Oldsmobile company.

"The Oakland Motor Car Co. is another plant that is included in the General Motors Co., but J. W. Murphy continues to be the guiding spirit. The company has had an unusually successful year both in competitions, proving the worth of the car, and in general sales. Plans are under way for a production of 3,000 cars for next year. There will be few changes in general construction for next year. The company has over 200,000 square feet of floor space and is well equipped for a big production.

"The Cartercar company is now settled in its new plant at Pontiac, taking over the factory formerly occupied by the Pontiac Buggy Co. So successful has it been during the past few years that there are few things to change for the 1910 product. There will be seven models for next year, although only three different types of chassis. The two-cylinder opposed motor will be continued in the taxicab and in a roadster, as well as in a delivery wagon and coupe. The company will also build a four-cylinder touring car of 30-35 horsepower and a very racy looking runabout.

### What Reo Is Doing

"One never goes to the Reo plant in Lansing, Mich., without expecting some great things, and there was no exception on my visit this year. It is planned to turn out 10,000 cars for 1910, a limited number being of the present two-cylinder type which continue to be in demand among agents, but most of the cars being the new four-cylinder. The cylinders are 4 by 4½, cast in pairs. The steering control is on the left-hand side. The car has an I-beam front axle, overhead valves, 108-inch wheelbase, selective type of transmission, high-tension magneto and multiple disk clutch. The company owns four square blocks of ground and is fast covering them with new buildings. Three new buildings are going up, one of them a four-story building 65 by 125, another of three stories 65 by 100 and a third with three floors 100 by 200.

"At Grand Rapids, Walter Austin and his father are enlarging their plant for the manufacture of the Austin car. This year, in addition to their high-powered cars, the Austin people will make a five-passenger car. It will be known as the little six and will have a 4¾ by 5¼ motor with a rating of 45-60 horsepower. The

company will only make six-cylinder cars next year, the other models being a 50-75-horsepower car and the five or seven-passenger car with a six-cylinder motor of 60-90 horsepower, the cylinders being 5½ by 5½. This car is of 140-inch wheelbase with four speeds.

"As a leader in what is known as the motor buggy business, the Holsman company, of Chicago, might naturally be expected to have great plans for next year. Mr. Hildreth told me that the factory at Thirty-sixth and Morgan streets has been working day and night turning out the present model and will have the 1910 cars ready for delivery on September 1. There will be only a general refinement of the present successful cars. The product has been pretty evenly distributed, the eastern trade and the export trade increasing during the past year.

### Busy at Racine

"More changes have taken place at the Mitchell Motor Car Co.'s plant at Racine, Wis., than at any other plant I visited during the past 6 weeks. All the wooden buildings have been removed and in their place are reinforced concrete structures of the most modern kind. A new office building 125 by 120 feet is now under way. It will have two floors with a garage in the basement.

"J. W. Gilson and J. W. Bate were at the factory last week, while President Lewis and Secretary Rogers were on the coast attending the annual agents' jubilee. Judging from my talk with Mr. Gilson, the Bate plan for economical manufacture has worked out to perfection. The cylinders on all models are the same size, so they can be placed in a four-cylinder or a six-cylinder car. This means a standardization of connecting rods and pistons and should result in a great saving in costs and in the securing of parts by agents. The cylinders are cast in pairs. Three models will be made next year—a 100-inch runabout, a touring car of four cylinders and a seven-passenger car of six cylinders. The cylinders in all cases will be 4¼ by 5, and a magneto will be regular equipment. The lines of the new cars are radically different from this year. The motor has overhead valves and among other details are a tubular torsion bar, straight line drive, single universal joint, lower hanging of the body and floating type of rear axle on all cars.

"Among the new buildings put up is one of 100 by 100 now being used for a motor assembly, while in construction is a new concrete affair 250 by 250, with a saw-tooth roof; another 450 by 250 with a duplicate to follow. Certainly the Mitchell company will be equipped to carry out its production of 6,000 cars.

"The Pierce Motor Co. has been reorganized and next year will produce the Pierce Thirty and the Pierce Forty. The

price of the car has not been settled. It will be a conventional car so far as general construction is concerned, but will have the Pierce motor which has been so successful in marine work. The president of the new Pierce Motor Co. is C. L. McIntosh, who is treasurer and part owner of the J. I. Case Threshing Machine Co.

"The Jackson Automobile Co. is preparing for a big production as a result of the new additions to its factories at Jackson, Mich. Two new buildings are in the course of erection, each 240 by 60 and four stories high. An addition is being built to the motor plant 200 by 60, three stories. The Jackson line next year will consist of three four-cylinder models. The changes for next year will include larger wheels and tires and a longer wheelbase, other than which the Jackson construction will be continued. Mr. Matthews told me that the Fuller Buggy Co., which he owns, will turn out a motor buggy for 1910.

"Before reaching New York I visited the plant of the Maxwell-Briscoe Motor Co. at Tarrytown, which is one of its big factories and the headquarters of that concern. The company now owns all the real estate at Kingsland Point and has covered it with factory buildings. It also has bought the old factory of the Rand Powder Co. in Tarrytown and only recently purchased another big factory near Providence, R. I. These are in addition to the big plant at Newcastle, Ind. The little Junior has been a great success and will be continued next year to the tune of many thousands, while great things are expected of the new model Q equipped with a four-cylinder 20-horsepower motor. Some other sensational models are planned for 1910, but in all of them the John D. Maxwell ideas, such as three-point suspension, thermo-syphon cooling, and unit engine clutch and transmission construction will prevail. The company plans to make 18,000 to 20,000 cars in its four factories next year.

### Atlas Doing Well

"Great success has attended the efforts of the Atlas Motor Car Co. at Springfield, Mass., in turning out its two-cycle motors. It is making heavy inroads on the taxicab trade in New York, the two-cycle two-cylinder motor of 20 horsepower giving good service even in the hands of hard drivers. The New York branch sold 148 of these cabs during the past 4 months. The company also makes a three-cylinder 30-horsepower touring car and a six-cylinder 50-horsepower runabout. The policy and line for 1910 has not been settled by Harry A. Knox and W. G. Morse, but it is not expected that there will be any radical change from the satisfactory type of this year. The new addition to the factory was completed about a month ago, giving the needed additional facilities for making the 1910 cars."



# The Readers' Clearing House



## MAGNETO-WIRING SYSTEMS

**C**INCINNATI, O.—Editor Motor Age—For the benefit of Motor Age readers please answer the following: 1—Should a motor give the same revolutions per minute on the level roads under load as when the motor runs idle? 2—Can a high-tension current from a single coil be distributed as easily and with the same distributor as the low-tension? 3—Please give a wiring diagram of magneto on a four-cylinder motor, and explain the difference, if any, between wiring a high-tension and a low-tension magneto. 4—Also show wiring scheme for a two-cylinder motor with a single coil and distributor.—A Subscriber.

A motor should not be expected to give the same number of revolutions per minute under load as when running idle, and the speed of a motor will decrease as the load increases. The frictional resistance of the power transmission from the motor to the rear wheels, together with the tractional and wind resistances, are by no means negligible quantities. A high-tension current may be just as easily distributed through any distributor as a low-tension current, providing the distributor is sufficiently well insulated to withstand the pressure of the high-tension current; but there are types of high-tension distributors that could not distribute a low-tension current owing to the fact that no actual contact is made between the revolving segment and the fixed terminals; and it would hardly be practical to attempt to use a low-tension distributor for high-tension work as the materials from which it is made are not designed to withstand the intense heat of a highly-induced current.

In Fig. 1 is shown a wiring diagram of a high-tension magneto for a four-cylinder motor. In a true high-tension magneto the current is transformed from the comparatively low-tension current delivered by the magneto armature to a high-tension current of sufficient pressure to

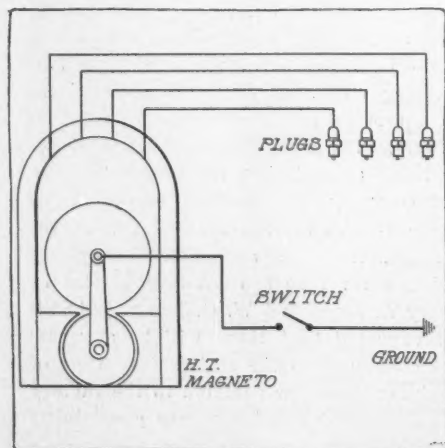


FIG. 1

**EDITOR'S NOTE**—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

overcome the resistance of the air gap between the electrodes of the spark plug by means of a secondary winding on the armature itself. Thus the whole apparatus is self-contained, and requires no separate transformer coil, which greatly simplifies the wiring. There are only five wires leading from a high-tension magneto for a four-cylinder motor; four of these lead to the spark plugs, and one to the ground. The switch is placed on the ground wire, and when closed short-circuits the primary current of the magneto and prevents the induction of a secondary current, thereby stopping the sparking at the plugs. In Fig. 2 a low-tension system is shown. This is more simple than the wiring of a high-tension system, only two wires leading from the magneto—the one carrying the current to the insulated terminals of the make and brake, or magnetic plugs; and the other being a ground wire, which unlike that of the high-tension system must be opened to stop the motor. A wiring scheme for a two-cylinder motor with a single coil and distributor is shown in Fig. 3.

## CARELESSNESS SHOWN

Bay City, Mich.—Editor Motor Age—While on a tour through the east recently I came on the scene of a motor car accident about 10 miles from Geneva, N. Y., which bore mute but impressive testimony of the possible dangers of negligence in failing to securely fasten wheel bearings. In packing the front wheel bearings, the lock nut or the retaining cotter was either carelessly put in place or was omitted altogether, which allowed the right front wheel of the car to come off, with the result that the car was tipped on its side in the ditch. The accident occurred about 10 p. m. The car had been running slowly over a bad dirt road, and had gone about 50 feet on a very smooth new state road. The car was accelerating at the time, and had the wheel remained in place while the car progressed a little further on the good road, the damage undoubtedly would have been much more serious. As it was, only the tire irons, fenders and running board were seriously damaged.—R. J. Handy.



## REMOVING NEWMASTIC

Paducah, Ky.—Editor Motor Age: Will Motor Age tell me how to remove Newmastic filling from a tire.—J. A. Paxton.

You cannot remove Newmastic filling from an inner tube, but if your tire is of the quick-detachable type the casing and tube can be removed and the tube replaced in the new casing. However, if your tire is of the clincher type its removal will be somewhat difficult and it would be advisable to send the wheels to the Newmastic company, Chicago, where this work is done every day. This company's methods of removing clincher casings is to push the bead of the tire out of the rim with a furniture clamp, insert a tire tool or heavy screwdriver and knock it around the rim. It is stated that after about 6 inches of the bead has been removed from the rim the balance will come off easily. If your casings are worn out and of no more use cut them off. The difficulty of removing Newmastic filled tubes from clincher tires is increased by the presence of lugs.

## STARTING ON COMPRESSION

Columbia, Tenn.—Editor Motor Age—If starting on compression is a misnomer, will Motor Age please explain why one motor will start without cranking more often than another? I am acquainted with two makes of high-class cars in the \$4,000 class. One car will start by cranking it in the morning and it is an exception if it has to be cranked again during the entire day. The other car has to be cranked every time the motor stops. Why is this, and could this be remedied in the one car so that it will start by rocking the spark as often as in the other?—L. C. Burgard.

There are cars now of the latter make in use which, after having been warmed up, will invariably start on the spark; and the reason for the failure of the car mentioned to start on compression is probably due to poor compression caused by

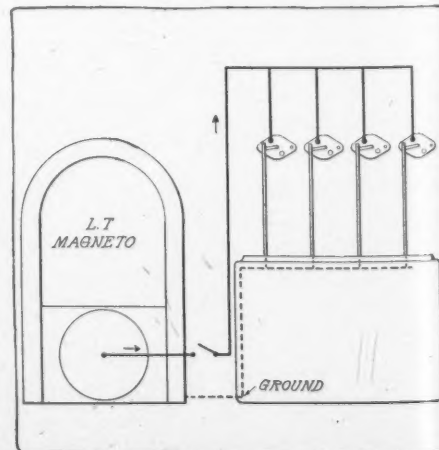


FIG. 2



leaky valves, sticking of the piston rings, or a leak around the cylinder or spark plugs which may need tightening or are fitted with a defective gasket. Then, again, the batteries may be a little weak. Motor Age believes that if the following instructions were carried out on the latter car it can be made to start very readily on compression: Put two or three tablespoonfuls of kerosene into each cylinder, then close all compression cocks and turn the motor over very slowly fifteen or twenty times, so that the compression will force the kerosene down past the piston rings. Then let the car stand for several hours. It might be necessary to repeat this operation for two or three nights. Then have the valves all carefully ground in, and see that when the valves are closed there exists between the pushrods and valve stems a space equal to at least the thickness of an ordinary visiting card. After securely replacing the cylinder and spark plugs, test them by applying a little oil or soapy water around the edges while the motor is being turned over. Having secured good compression, overhaul the ignition system; see that the batteries are fully charged, coils properly adjusted and timing correct. A storage battery, when fully charged, should show a voltage of 2.2 volts per cell, making 6.6 for a 6-volt battery. This may be used until the voltage drops to 5 volts, when it is advisable to have the battery re-charged. As to the timing of the spark, adjust it so that when the control lever is fully retarded, the spark will occur when the piston is about  $\frac{3}{4}$  or 1 inch down on the explosion stroke. Now, if the carbureter adjustments are correct, the motor should start on compression. When starting this way is desired, the operator should turn off the current, then open the throttle wide. It is not necessary to race the motor, then switch off the current; the cylinders will get a better charge if just three or four slow revolutions are made after the ignition is cut off.

#### WHEEL TAX QUERY

ST. LOUIS, MO.—Editor Motor Age—Through the Readers' Clearing House will Motor Age advise me whether a resident of southern Illinois making a trip to the northern lake resorts will be compelled to pay the \$20 wheel tax when passing through Chicago.—Charles F. Smiley.

While it would be possible for Chicago to collect such a tax, there is an understanding among the Illinois cities and towns that transient traffic is exempt.

#### MOTOR USED BY DOLSON

Roxbury, Conn.—Editor Motor Age—I am an interested reader of Motor Age and wish little information through the Readers' Clearing House. What make of motor did the Dolson Automobile Co. put in its cars? I understand that this concern is now out of business and I am unable to secure motor parts, not knowing who is now handling the Dolson car.—E. Wetmore.

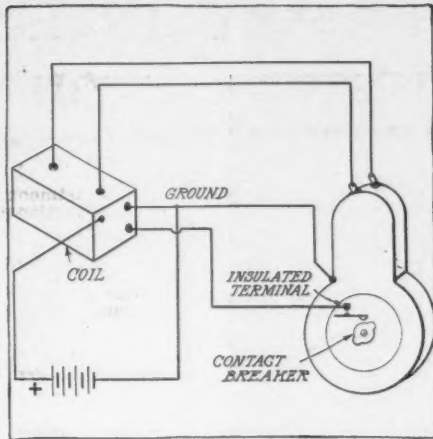


FIG. 3

The Dolson Company is now located at Muncie, Ind., and a communication addressed to that concern at that address will bring you the information you desire regarding the motor in the Dolson car. The name of the motor used in the Dolson cars most probably will be found embossed on the inspection plates of the crankcase of the motor. It is said that when the Dolson company first started business it used the Continental motor, manufactured in Muskegon, Mich. Later on it adopted the motor called the Milwaukee auto engine, made in Milwaukee, Wis. The initials or names of the manufacturers are generally to be found on the motor.

#### LOCATING A KNOCK

Belmond, Ia.—Editor Motor Age—I am an interested reader of the columns of the Readers' Clearing House, and now wish to ask advice of Motor Age relative to the pounding in my model 10 1909 Buick. I had the car overhauled, with the exception of the electrical parts, all carbon removed, the piston rods tightened on the crankshaft and still the engine knocks, generally when running on slow speed. Occasionally I hear it on high speed. What is the cause of this knock?—Harry Bohning.

Apparently you are running with too

high a spark and it might be advisable to set the magneto gear back one or two teeth. When knocking occurs retard the spark. If this causes the knocking to cease, you will have located your trouble. Further annoyance may be avoided by setting back the revolving segment of the commutator or distributor. Of course, there are a number of other causes of knocking, which are an inevitable warning that something is wrong; and your disturbance may be due to any of the following: Badly-worn piston or rings, improper valve seating, a loose wristpin, loose main bearings, a broken spoke or web in the flywheel, flywheel loose on its shaft, the connecting rod may not be at right angles to the crankshaft, or the motor may be missing. One of the most common causes of misfiring is an improper mixture of gasoline and air—too much air or too much gasoline. Examine the magneto and all its connections at the terminals; perhaps some of the moving contacts need cleaning or attention otherwise. Probably the springs holding the brushes against the armature need a little stretching. There may be an occasional short in the switch, caused by a loose connection or stray strand of wire, or possibly there is too large a gap between the electrodes on one of the spark plugs.

#### UNIQUE ROADSIDE REPAIR

Big Springs, Tex.—Editor Motor Age—Readers of Motor Age may be interested in a little experience which occurred near here last week. C. H. Miles, a local motorist, while making a delivery of a Mason car struck a rut on a hillside when traveling fast, with the result that all passengers were thrown out and the left rear wheel collapsed. The accompanying illustration shows Mr. Miles entering Tahoka, Tex., with a 4 by 4 piece of timber serving as a runner to meet the broken wheel, he having traveled  $3\frac{1}{2}$  miles under the power of the car, and without aid of any nature.—A. Swann.

Such a practice is not favored, as it puts too much strain on the differential.



ROADSIDE REPAIR USED IN TEXAS

## SYSTEM IS NECESSARY IN THE STOCK ROOM



OFFICE OF STOCK ROOM KEEPER—1, STOCK ROOM KEEPER;  
2. CUSTOMER



CORNER OF STOCK ROOM—3, RACK FOR SMALL PARTS; 4, RACK FOR SPECIAL TOOLS; 5, RACK FOR GAS TANKS; 6, GALLERY

**M**ANY claim that system in the stock room is the keynote to success in the business of retailing motor cars; that promptness in supplying the wants of a customer is the best advertising any concern can have and that the company that endeavors to keep abreast of the times by always keeping on hand plenty of parts is the one that flourishes. At any rate that is the theory most of the branch houses in Chicago follow and in no other city in the country do more branch houses exist. Most managers have studied the stock room problem for years and as time has flown by they have inaugurated systems that have resulted in a general improvement in the furnishing of parts to

A concern that takes pride in its stock room is the Chicago branch of the Ford Motor Co., which has on hand at the present time at least \$25,000 worth of parts, a stock that is so complete that a customer desiring a part for a car 5 or 6 years old

can get it as quickly as can the man with a 1909 model. It is the boast of the Ford stock room keeper that he does not go home at night until his order basket is emptied. Extra efforts are made to fill telegraph orders. A telegram ordering parts comes in and at once the wheels start turning, the result being that the next train going to the town from which the telegram comes carries the part ordered, it being the belief of Manager T. J. Hay that a telegraph order is like the "help" cry of a drowning man and is imperative.

## Ford System Carefully Devised

The Ford system in vogue at the Chicago branch is the result of the combined experience of Manager Hay himself, who started systematizing stock rooms 15 years ago when he was in the bicycle business, and that of the factory at Detroit. Recently he tested the efficiency of his system. From his office downstairs he

[illegible]

RECEIVING SLIP ON WHICH ARE NOTED ARTICLES RECEIVED

**MEMORANDUM RECEIVING SLIP**

No. 251  
ORIGINAL

OF GOODS RETURNED BY CUSTOMER

*Ford Motor Company*  
1400 Michigan Ave.

CHICAGO \_\_\_\_\_ 19\_\_

To \_\_\_\_\_

We are in receipt of the following articles which will be duly inspected and a credit memorandum issued to you for the amount allowed as soon as same is determined.

SPECIAL NOTICE This slip is NOT A CREDIT MEMORANDUM.  
All goods returned are subject to inspection, the right being reserved to accept factory inspection when necessary.

QUANTITY	PART NO.	ARTICLE	REMARKS

if the above list does not agree with your records, please advise at once.  
All claims must be accompanied by this slip.

RECEIVED BY \_\_\_\_\_

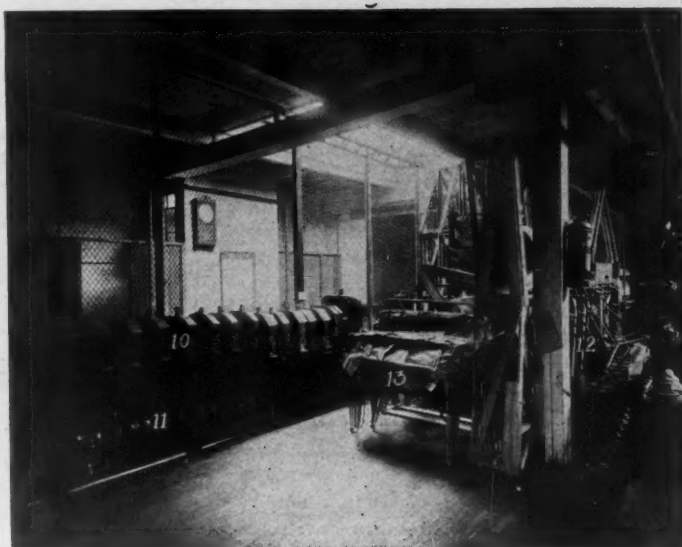
*Ford Motor Company*  
CHICAGO BRANCH

By \_\_\_\_\_

ordered twenty-five different articles, selected at random from the book of parts published by the Ford company, and the longest wait he had was 5 minutes, the parts coming down carefully wrapped and accompanied by a bill for each order.

The stock room is located on the second floor, at the top of the stairs, so that it is easily accessible for the customer seeking parts. It is a business by itself. As the customer comes up the stairs he approaches the stock room office, which is 10 by 12 feet, and in which is located the keeper of the room. The delivery window is a big one and convenient to it are benches on which the customer can sit while waiting for his order to be filled. The stock room man receives the order





FOR BULKY ARTICLES—10, ROW OF RADIATORS; 11, RACK  
OF WHEELS; 12, FRONT AXLES; 13, TOPS

CREDIT MEMORANDUM SLIP

Back of the office is the stock room proper, which is 40 by 40 feet, and in which there is every evidence of system. Two boys are employed here to look after the stock, while in the rear is a window leading into the repair shop, through which the workmen, when they need parts, file a requisition which has been signed by the foreman. Near the window is a huge revolving stand, fitted with racks, where are kept special tools which are supplied to the workmen on a requisition from the foreman. On the other side is another revolving stand with boxes in

The Ford company has utilized every inch of space in the stock room. The smaller parts are kept in bins, of which there are 1,800 in all. Some of them are 2 inches high, 6 inches wide and 12 inches long, while others are 8 inches deep, 10 inches wide and 12 inches long. These bins are placed in big racks extending to the ceiling, there being four of these in all. At the north end of the stock room the extra radiators are placed on a rack, while underneath is another rack for wheels. Front axles are fastened to the wall and held in place by hooks, while the springs are fastened in about the same manner. Then, too, there is a big rack in

So much for the layout of the stock room. The system is another. The manager of the stock room has a receiving slip which he fills out when he receives parts or supplies from the factory or other sources which is attached to the original invoice. He keeps the original and sends the copy to the factory. Another blank is called a memorandum receiving slip for

ALWAYS GIVE MACHINE NUMBER WHEN ORDERING REPAIRS

goods returned by customers on which the company states that: "We are in receipt of the following articles which will be duly inspected and a credit memorandum issued to you for the amount allowed as soon as same is determined. This slip is not a credit memorandum. All goods returned are subject to inspection, the right being reserved to await factory inspection when necessary." This is intended to care for the customer who may bring in a part which he claims to be defective. It is received and tagged and after being considered by the branch a report is made to the factory. If the claim is granted the customer is given due credit by the local branch of the company.

In connection with this stock room system the Ford parts book should not be overlooked. The company has devised a unique system for this. All the parts are photographed and numbered, while on the same page is a list by which each part is identified by a number. A customer not familiar with the names of the thousands of parts looks at the picture, finds the part he is seeking and by ordering by number he is sure of receiving what he wants. Identification is made easier by dividing the book into departments. For instance, there are chapters for wheels, for frames, for transmission, etc. This system now has been in vogue for a couple of years and has been found to fill the bill admirably.

#### MAXWELL HOLDS CONVENTION

Newcastle, Ind., July 16—The 1909 convention of the district supervisors and branch-house managers of the Maxwell-Briscoe Motor Co. went into session on July 13 here, where the largest of the company's factories is located. Most of the delegates arrived from Detroit, where they had gone to attend the festivities incident to the Glidden tour. The party left Detroit on a special train, stopping for luncheon at Springfield, O. The Maxwell band, which had enlivened things at Detroit, accompanied the delegates, who arrived at Newcastle about 10 o'clock in the evening, stopping at the Bundy hotel. The first day's session was attended only by district supervisors and district managers and the discussion included the selling policy of the company for the coming season and other matters of interest to the closer family circle of the Maxwell organization. After the first day's work the Maxwell men were the guests of the city of Newcastle, which had prepared an elaborate entertainment at the Country Club, otherwise known as the Nip and Tuck Club. Charles F. Hernley made a most agreeable host. Fireworks, band concerts and general jollification at Maxwell park were attended by some 5,000 Newcastle inhabitants. The second day's deliberations were also attended by Maxwell dealers who filled the Bundy hotel to overflowing, and lasted until late in the evening before breaking up.

## Manufacturers' Communications

#### LIGHT-CAR RACE RULES

Beverly, Mass.—Editor Motor Age—As manufacturers of light-weight cars we would like to make public protest in the reading columns of Motor Age against the rules laid down to govern the so-called light-car contests. At the present time all the light-car events for the next 2 or 3 months, where piston displacement is the basis of qualification, a minimum weight of chassis of 1,800 pounds is called for. What chance has a manufacturer like ourselves who does not build a car that weighs complete to exceed 1,700 pounds going to have at all to show his car in competition? The ruling gives an unfair advantage to the builders of heavy cars with small motors and leaves the light-car manufacturer completely out in the cold.

Motor car racing is supposed to have its greatest value in assisting to determine the most effective and practical design. If a manufacturer is able, as we claim we are, to build a 36-horsepower engine, place it in a car with a carrying capacity of five persons and show a total weight of car and equipment of less than 1,700 pounds, why should he not be permitted to attempt to demonstrate in important contests in competition with other manufacturers that his idea of construction and proportion of power to weight is not superior? In other words, why should we not be allowed to take the chassis of our 1,675-pound five-passenger car and place it in competition with other cars of our same rated horsepower? In a race of 250 miles, if the light car can stand the racket better than the heavy ones, why should not the light ones get the credit, and vice versa?

We claim an advantage over the heavy car and the heavy car manufacturers claim an advantage over the light. Why should we not be allowed to get together on the same footing and fight it out? All we want is a chance to compete with other cars of our same power, but at the present the best we get is a chance to compete in free-for-all events with no limitations of any kind, and which proves nothing of value to the builder and merely furnishes good sport for the spectators.—Cameron Car Co., by H. W. Doherty, Sales Manager.

#### SUGGESTS MOTOR RESERVES

Moline, Ill.—Editor Motor Age—Mobilization of military forces by means of the motor car has met with unusual success in England and other foreign countries in recent public contests and it seems evident that the motor car is to play an important part in military matters of the future not only in times of peace but in actual warfare. That the United States government has allowed foreign countries to set the initiative in this matter is a regrettable

fact. There is no argument that other nations have eclipsed our government in adopting motor cars, not only in military circles but in other state departments. Why the United States has so completely ignored the usefulness, swiftness, the cheapness and serviceability of the motor car is known only at Washington. It seems deplorable that our army is not more generally equipped with cars as is the case abroad. The English secretary of war is taking active steps in organizing a motor army reserve on strictly disciplinary lines.

The splendid success of the recent experiments, when 1,000 men chosen from three regiments of guards in London, were dispatched in very quick time to Hastings in motor cars lent by private owners in order to repel an imaginary invasion, has prompted the English army counsel to include the motor in the annual army act. By this act every single motor vehicle in the country can be pressed into service at the army counsel in time of emergency. Thus every owner is now expected to register his car number and his name and address at the war office.

This seems to be a commendable procedure. It would appear advisable for this government to carry out plans on practically the same lines. There are more cars registered in the United States than any other foreign country, and an act might be passed by congress whereby private cars could be used in an emergency in the United States. Any one of the largest cities of this country have a sufficient number of cars that could be at the command of the government. There is a law in this country whereby all male citizens can be drafted into the army in time of war if the occasion demands. It seems to us that something on these lines could be worked out so that hundreds of motor cars could be at the command of the president or adjutant general.—Midland Motor Co., by H. E. Walton.

#### NOT CARRYING TIRES

Akron, O.—Editor Motor Age—We read on page 9 of the July 15 issue of Motor Age of an accident in the Glidden tour which befell a Rapid truck, said to have been the "Firestone tire truck." This gives the reader the impression that this truck was loaded with Firestone tires, whereas it only was carrying signs and had no connection whatever with the Glidden tour. Contesting cars using Firestone tires never have yet felt the need of being accompanied by loads of fresh tires. For instance, in the New York-to-Seattle race two of the cars started and finished without carrying any extra tire equipment whatever, and I rather think that this 4,000-mile race was a somewhat stiffer proposition on tires than the Glidden tour has ever been. We are interested in the Glidden tour only as a car test, and not from a tire standpoint, anyway, as the management ruled against making a record of competitive tire service.—H. S. Firestone, Firestone Tire and Rubber Co.



# REGAL ON COLORADO SOIL AND ON TIME

DENVER, COLO., July 20—Special telegram—The Regal Plugger was on time at Denver. It followed the Glidden route from Julesburg, finding the roads near Sedgwick almost impassable, so it was necessary to make a detour over the prairies for miles. The roads were very rough, with deep sand and steep hills. From Ft. Morgan to Denver, 95 miles, the roads are dim trails, deeply rutted and over a desert. The danger of striking axles is great. It was necessary to cross the Antelope and Bijou rivers at dry fords and through deep, soft sand. The heat was intense. The Glidden tourists should carry a large supply of water and oil, for there is no chance to get supplies for almost 100 miles between Ft. Morgan and Denver. They had better carry long boards, for the sand is impossible to get through otherwise. Chains are of no assistance. The Plugger leaves tomorrow for Cheyenne. Up to date there have been no mechanical troubles. The car is 2,367 miles from New York in 13½ days.

## George Wilcox's Log

Grand Island, Neb., July 18—When we planned the transcontinental schedule for the Plugger we overlooked two most important factors that contribute to seriously interfere with adhering to the time table. The first we have had with us every hour of each day since leaving New York and consists of our friends and the general public en route who in their efforts to entertain us consume several hours each day. The second is Iowa gumbo, which at the present time exists in its most malignant form, owing to the excessive rains throughout that section.

We left Chicago at noon on the 12th, escorted by a collection of cars of many makes, each one filled with good fellows, who, had they been allowed, would have knocked the schedule sky-high, inasmuch as they would not let us go. Out through Garfield park and on toward Aurora they took us at a great rate and finally 25 miles out all stopped for the last good-byes and we are off for the great west. The road to Aurora is superb and we land at the Regal agency, Knouth Brothers, for 2 o'clock lunch. We are informed here that pilots await us clear across the state, and at 3 p. m. we set sail for Clinton, Ia., our pilot setting a good clip to Hinckley, where we are met by Mr. Lovering, of Shalbona, with the next pilot car. Mr. Lovering knows how to make time, and he pulled us along to Rochelle, 85 miles from Chicago, at a gait that was hot enough for a road race. Here we were joined by F. E. Lovell, the Regal agent at Morrison, Ill., who was out to put us into Iowa, and he certainly did. When we reached Morrison, 10 miles from Clinton, he insisted that we remain over; such hospitality we couldn't resist, and we did.

The next morning found us after a short run facing the Father of Waters,

and a 20-foot gap in the bridge, which the foreman of the gang of bridge men informed us would take 2 hours to repair. The Plugger cannot fly unless she has the earth under her wheels, and after looking down 100 feet through the gap in the bridge floor at the rushing flood beneath we decided to wait. Three mortal hours we cooled ourselves high in the air, midway of the great stream, and then, as the last flooring plank went into place, we were away and into Clinton. Taking on Mr. Smith, of the Smith Paper Co., of Clinton, as a pilot we drove into the hills. Such hills! Up and down, and down and up we went for Cedar Rapids, we turned and twisted, angled off north and south, and slammed through the ruts for 150 miles, and, as darkness came on, we hit

the main road into Cedar Rapids. We decided to hit the trail early the following morning for Carroll, Ia., but night found us at Boone, 50 miles short. Tremendous rains had converted the roads into bottomless quagmires of the finest brands of gumbo, and we became expert bridge and road-builders. Gumbo is indescribable. It is as heavy as lead and once it attaches itself to your car and dries, its removal brings the paint as well.

strenuous day's work in our lives.

We begin to approach the route of the Glidden tour and find the farmers out for 150 miles working the roads for the contestants. It hinders more than it helps us, as the scrapers throw the heavy half-dried mud up in the center, forming a crown that keeps the Plugger keeled over at a dangerous angle. We are piloted from town to town by enthusiastic motorists who come out to meet us and show the greatest interest in the run.

Benison, 56 miles, was reached at 6 p. m., and here we met a delegation which solemnly informed us that further progress was impossible, as the Missouri valley roads are under water and hub-deep in gumbo. We decided to plug on, however, and we got away to a chorus of awful predictions and found a good road to Council Bluffs with the exception of one mudhole. So much for listening to the wise ones and not heeding their advice.

Thirty miles out of Council Bluffs they found us at 11 o'clock. Mr. Berschky, of the Berschky Motor Car Co., was in the lead. Going on to Omaha was impossible; it was only 2 miles from Council Bluffs, but the great obstacles were the good fellows there, so, like the Gliddenites, we remained over and had the time of our lives.

It was 11 o'clock before we started for Omaha and with 158 miles to go to Grand Island began to realize that our day's work is cut out. However, again our friends and new-found acquaintances played havoc with the schedule and it was 2 p. m. before we could make our escape and head west from Omaha for the run to Grand Island.

If you are going touring and want to meet the greatest people in the world, go through Iowa and Nebraska. Everyone is an enthusiastic motorist. One can hardly conceive of the great numbers of cars owned by the farmers in this section, and it is the greatest pleasure in the world to them to help out the visiting motorists. How I wish I could devote the space to describing the many, many acts of kindness shown us! We are seldom without a pilot, cars going from 10 to 50 miles with us and our journey is made one round of pleasure by the attentions shown us. Should this come to the eyes of them, we say again, "Thanks, good friends. You are true sportsmen, and the greatest good fellows in the world."

## DEATH OF GEORGE T. ROBIE

Chicago, July 19—George T. Robie, president and founder of the Excelsior Supply Co. and one of the leading business men of Chicago, died at the Chicago hospital early Sunday morning. Mr. Robie became ill late in the week and late Saturday night it was found that an operation for appendicitis would be necessary. He was immediately removed from the Hotel Windermere to the hospital, where the operation was performed. Owing to the advanced stage of the trouble Mr. Robie was unable to survive and passed away early Sunday morning. Mr. Robie was born in Walworth, N. Y., March 26, 1853, and came to Chicago at the age of 20. In 1876 he established the Excelsior Supply Co. and soon became a leading dealer in sewing machine supplies and equipment. When the bicycle became prominent Mr. Robie took on bicycle supplies and in a short time became the leader in that line. Following his policy of aggressiveness, as soon as the motor car became an established element the Excelsior company assumed the same position in the motor car supply business that it had previously held in the line of sewing machine and bicycle supplies. Mr. Robie held a prominent position in the National Association of Manufacturers and in the Chicago Association of Commerce. He was one of those who made the recent trip to Seattle. He was a member of the Union League, Chicago Athletic, South Shore and Chicago Automobile clubs. Mr. Robie also was prominent in Masonic circles. He was a member of the Englewood Blue Lodge, Normal Park Chapter, Imperial Council, Englewood Commandery, Oriental Consistory and Medinah Temple. He leaves a widow and one son, Fred C. Robie, who has for some time past been the working head of the Excelsior Supply Co. The funeral services will be held on Tuesday at Englewood Masonic Temple.



## MOTOR CAR DEVELOPMENT



THE efforts of the Knox Automobile Co., Springfield, Mass., for next season will be largely confined to the manufacture of three models of water-cooled gasoline cars designated models R, M and S. All three follow the same general lines of construction and design but differ in motor sizes and chassis measurements. Model R is typical of the lot and in itself is a continuation of the present model O with its unit power plant and shaft drive, but with larger cylinders than the O, the bore being 5 inches as compared with 4 $\frac{7}{8}$  inches this year. The stroke is 4 $\frac{3}{4}$  inches, not having been changed. The model M has been altered and is a shaft-drive car, as all of the Knox machines are for 1910. It has a motor with four cylinders 5 $\frac{1}{2}$ -inch square. A brand new model is S, a six-cylinder one with cylinders 4 $\frac{3}{4}$  by 4 $\frac{7}{8}$ . Besides making all three models along practically identical lines of design, the cars have been considerably changed by a redesigned selective gearset, three-quarters elliptic rear springs, the general adoption of dropping the frame side members 1 $\frac{1}{2}$ -inch in front of the rear axle to allow of the use of three-quarter elliptic springs

CAMSHAFT AND ONE OF ITS BEARINGS

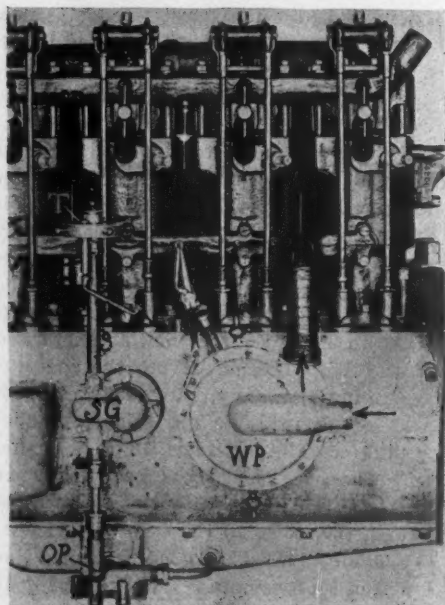
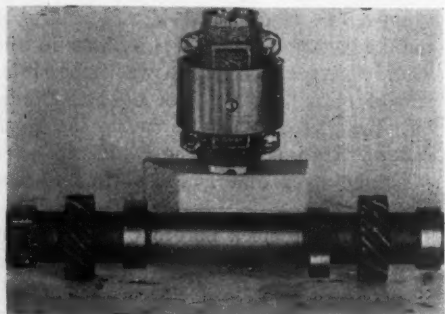


FIG. 2—RIGHT SIDE OF MOTOR

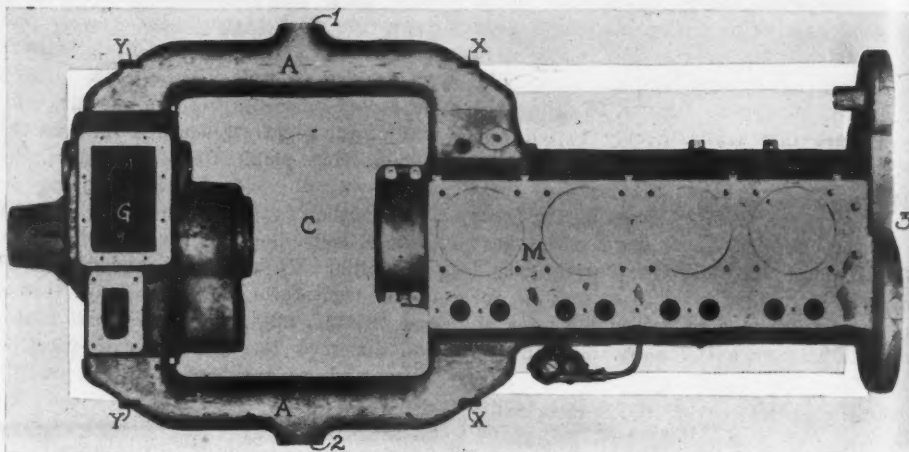
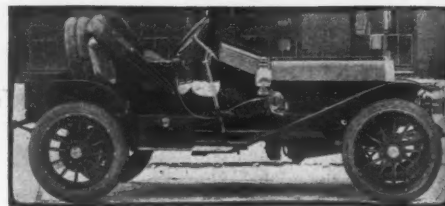


FIG. 1—BASE OF KNOX UNIT POWER PLANT

and yet keep the center of gravity low, using a new design crankcase, altering the oiling system slightly, redesigning the brake drums, changing the three-point motor plant and making not a few additional minor car alterations.

### Knox Unit Power Plant

Perhaps of all the changes in Knox cars nothing will be closer watched than the evolution of the unit power plant which has been used heretofore on the present model O shaft-driven Knox car for 1909. For 1910 the power plant framework is as illustrated in Fig. 1, in which M shows the crankcase, G the new gearbox which is much smaller than that of previous models, C the space for the flywheel and three-disk clutch, and A the two arms which unite the crankcase and gearbox, leaving room between them for the flywheel. The unit power plant thus has four parts, M, G, A and A composing it, the arms A attaching at one end of the crankcase through a couple of bolts at point X and at the opposite end to the gearbox at point Y. These arms are grooved where they con-



KNOX 1910 ROADSTER

nect with the crankcase and gearbox and into which fit tongues on the crankcase and gearbox. With this construction the gearbox and the two side arms B are adaptable for use on any model. This illustration also shows two of the three points for supporting this power plant. They are at 1 and 2 near the centers of the side arms A and at which points the plant bolts to the side members of the frame at a point well back and midway of the axles and where the twisting strain on the frame is least. The forward support 3 consists of a flexible trunnion supporting the motor on a bronze cross member of inverted channel section. In this

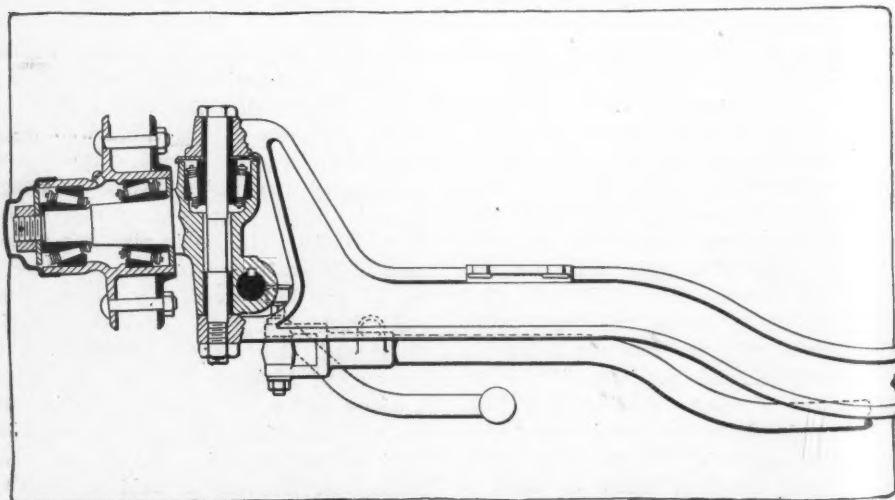


FIG. 3—SHOWING REAR AXLE CONSTRUCTION



# THREE OF THE 1910 KNOXES

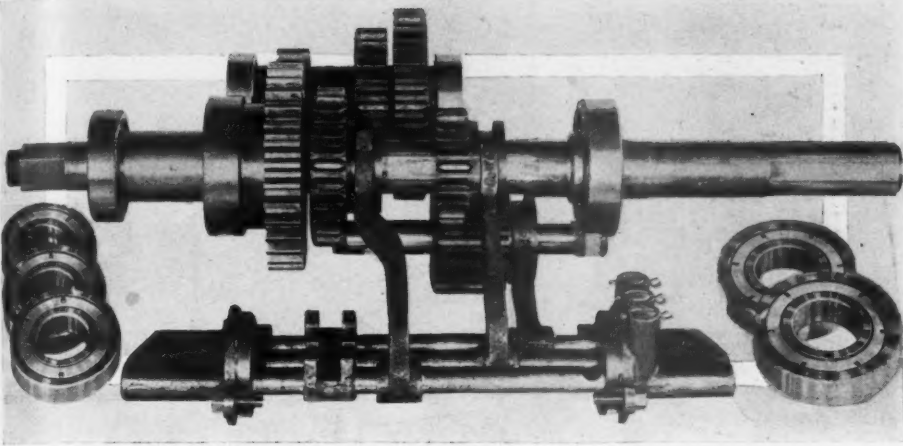
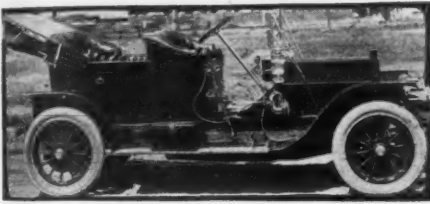


FIG. 4—TRANSMISSION GEAR-SET AND ANNULAR-BALL BEARINGS USED



1910 MODEL R TOURABOUT

power plant either the motor, clutch or gearbox can be removed without interfering with the others and by the removal of the four side bolts supporting at points 1 and 2 and also the trunnion support at 3 the entire power plant can be taken from the chassis. In addition to this of course would be the uncoupling of the forward universal joint in the driveshaft, the muffler pipe, ignition wires, throttle and brake connections, all of which should be done in approximately 40 minutes.

## Arrangement of Motor Parts

Fig. 2 shows the arrangement of the timer, oil pump and water pump on the right side of the motor. Located opposite

the space between the third and fourth cylinders on the right side is a vertical shaft S, on the top of which is the timer or commutator T, and on the bottom of which is the oil pump OP, the shaft being driven through spiral gears from the camshaft. Just in advance of this shaft is the housing of the large centrifugal water pump WP also driven by spiral gears from the camshaft. This arrangement of these three parts of the motor is particularly compact and has been obtained without the use of any additional horizontal motor shafts, the gearing in each case being spiral direct from the camshaft. The camshaft illustration shows the two gears on it for driving these parts.

A motor improvement not to be overlooked is the new form of crankcase fitted which consists of four parts—a main portion which is the case proper, a lower or bottom serving as an oil reservoir, the timing gearcase and the timing gear cover. In this respect it is similar to that used on the model M cars this year. Very closely associated with the crankcase in

Knox cars is the lubrication system which is built on the de Dion line, having a pump OP, Fig. 2, to lift the oil from the reservoir and deliver it to the five bearings of the crankshaft, whence it is delivered to the four lower connecting rod bearings through the drilled crankshaft and thence through ducts in the connecting rods to the wristpin bearings in the pistons the three camshaft bearings are also supplied. This gives a positive lubrication to all of the thirteen motor bearings and the surplus from the wristpins aids in oiling the cylinder walls. A change in this system over that of the present one is that the oil from the pump flows through a large-sized pipe outside of the crankcase and from it through branch pipes to the bearings, whereas it used to flow through a core in the crankcase casting. A pressure gauge located on the sloping footboard registers the amount of oil pressure, which pressure can be varied at will by an adjustable spring bypass. On the left side of the motor are the oiler filler cap and petcock showing the oil level. A mist of oil lubricates the cylinder walls, the surplus oil falling into the

KNOX TRANSMISSION DISCONNECTED

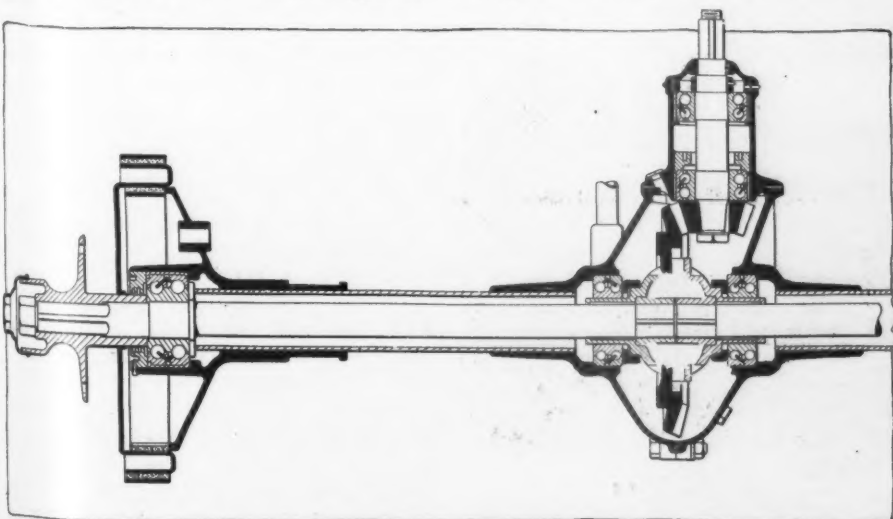
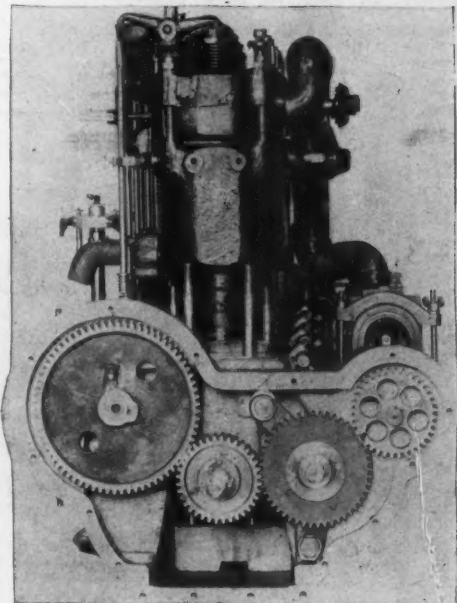
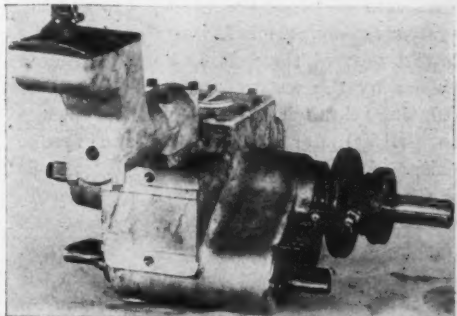
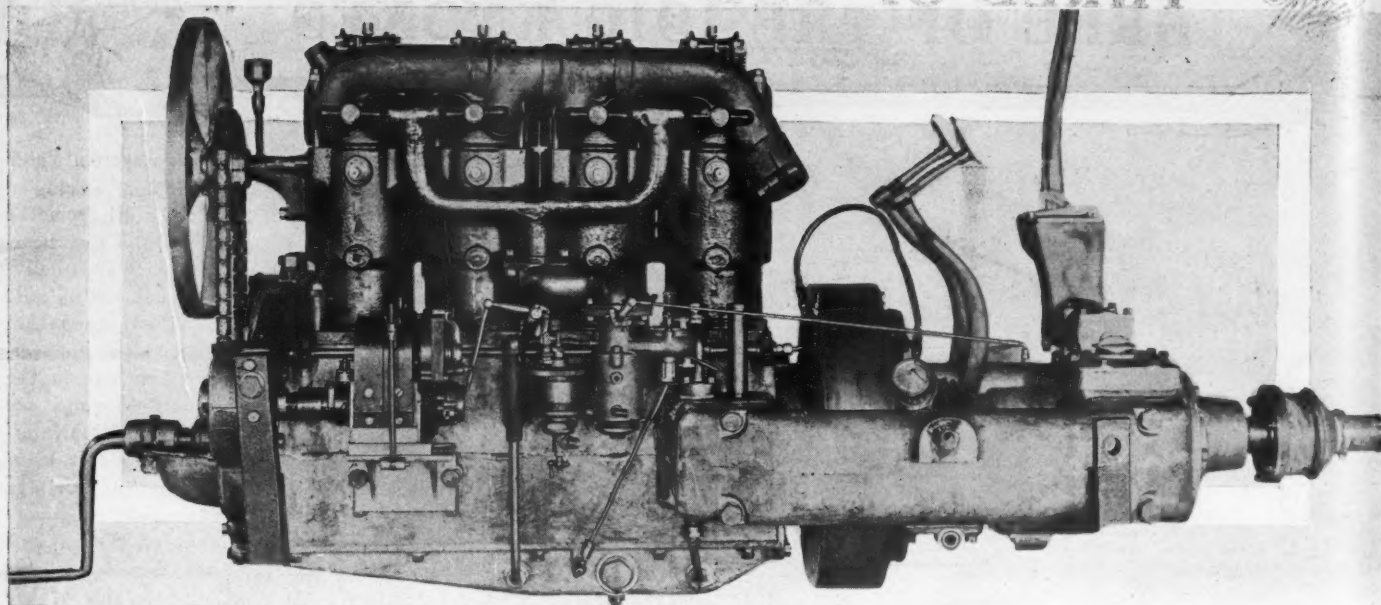


FIG. 5—FEATURES OF FRONT AXLE CONSTRUCTION

FIG. 6—FRONT END OF MOTOR



LEFT SIDE VIEW OF KNOX 1910 POWER PLANT SHOWING UNIT CONSTRUCTION

crankcase where it is filtered and recirculated through the motor parts. The oil pump drive is fitted with a spring connection which, should the pump clog for any reason, the spring snaps without the danger of permanently damaging the pump.

#### Double Ignition System

A double ignition system is used on all three Knox models, one system being a high-tension Bosch magneto and the other a storage cell, vibrator coil and timer. Two sets of plugs are used. The cooling system is conventional, water entering the lowest part of the jackets being delivered thence by the water pump; and after circulating through the waterjacket passes to the cylinder head jacket and thence exits. Assisting in the cooling system is a six-blade fan driven by a leather-covered chain belt running in grooved wheels and kept tight by an automatic tightener. A special spring connection is used in the water pump drive, the same as in the oil pump, so that in case any obstruction reaches the pump the spring snaps and a

new one can be readily replaced. This precaution avoids any danger to gears or shafts. The carbureter fitted is a Stromberg.

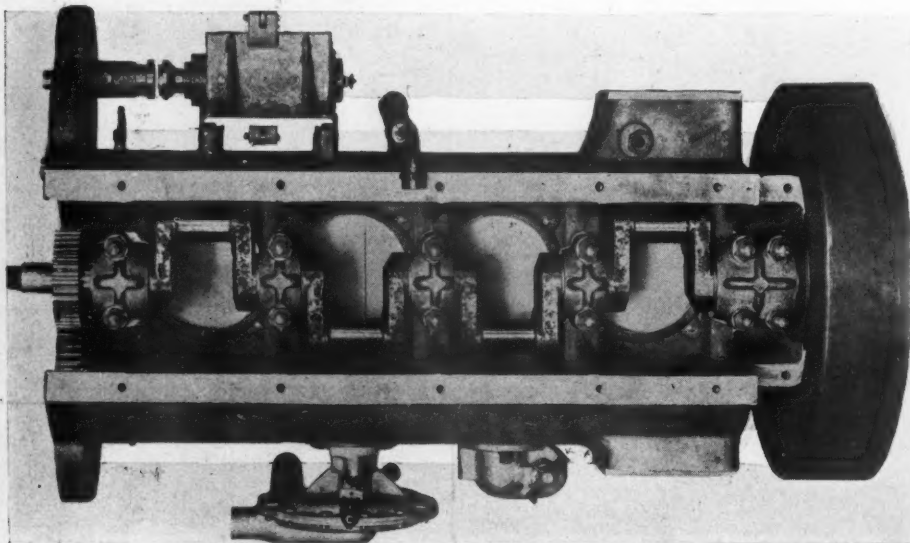
The design of the Knox motor remains unchanged and is characterized by the use of separately-cast cylinders with detachable heads and these heads carrying the intake and exhaust valves. Making cylinders with detachable heads permits of machining and grinding the walls with the utmost accuracy; and having the heads separate permits of machining them on the combustion chamber side, thereby making it possible to obtain uniform compression in all four cylinders and also guarding against rough spots on the combustion chamber which might cause pre-ignition. The detached heads make the cylinder construction interesting. In the upper end of each cylinder casting is a deep groove concentric with the cylinder bore and into which a copper asbestos gasket is placed. In the bottom of the cylinder head is a circular tongue which

fits into the groove and studs hold the head in place. This is not a water joint but solely a compression one, the water jacket around the cylinder being entirely separate from that in the head with a short bridge connecting pipe for taking the water from the cylinder to the head part. The Knox cars, ever since the introduction of water cooling, have used valves located in the heads and for the next season are employing flat-seated valves instead of those with a tapered seating. The flat-seated valve offers a larger opening and has been used by several of the leading American and foreign builders for several seasons. The valve-in-the-head arrangement calls for use of overhead rocker arms, but only one camshaft is used.

#### New Design of Gearset

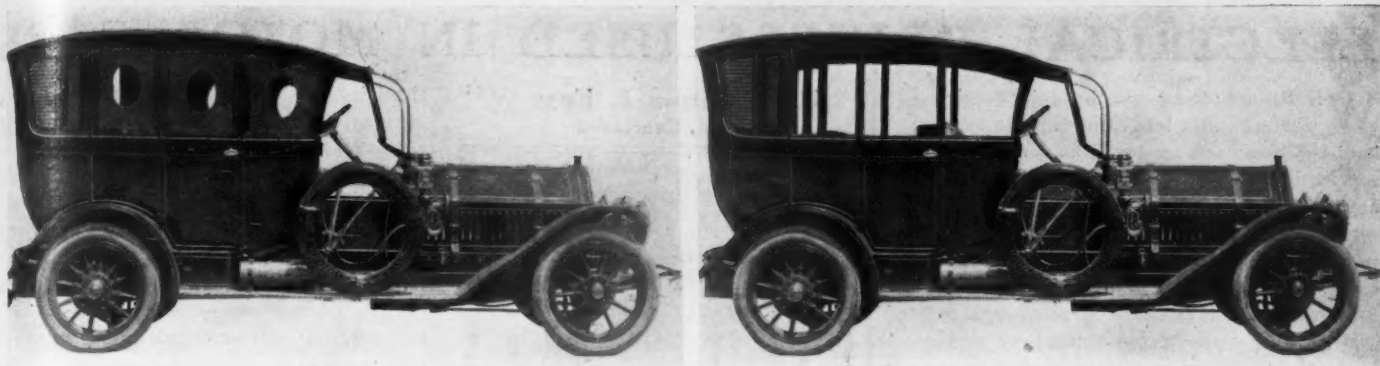
Leaving the motor, attention is directed to the new design of selective gearset giving three forward variations. The big merit of the gearset is its compactness being particularly short, the short shaft measuring only 5 inches between bearings. All shafts are carried on annular ball bearings and nickel steel is used in both shafts and gears. A clutch brake is fitted in order to stop the spinning of the clutch when disengaged, to change speeds, the reducing of this spinning greatly facilitating the problem of shifting gears.

The Knox rear axle is a semi-floating construction, Fig. 3, and New Departure double-race ball bearings are used. One race of these bearings is used at each side of the differential and on the pinion shaft are two races, one in front and the other in rear of the pinion. At each road wheel is another race. This illustration shows one of the braking features of Knox cars for next year, namely, the employment of pressed steel brake drums, there being two, one for the external brakes and one for the internal with an air space between them. The air space is



UNDER SIDE OF CRANKCASE WITH OIL PAN REMOVED





BODY DESIGN FROM FRENCH POSTER IN WHICH LIGHTNESS AND COMFORT WAS THE AIM

to avoid heating of the drums. With the drums separate one drum can be heated and the other remain cold until that set of brakes has to be used. This is an important feature for mountain work. The driving from the rear axle to the frame is through radius rods at the side, extending from the axle housing to the side frame members.

A change has been made in the front axle, all cars being fitted with I-beam types, having Timken roller bearings on the spindles for carrying the road wheels and also a race of these bearings in the steering knuckle hub to carry the weight of the car. This is illustrated in Fig. 5.

#### UNIQUE BODY EQUIPMENT

Copying the lines of an old French caleche or berline as depicted in a French poster, Alfred F. Leopold, a Chicago owner, has equipped his Thomas six-seventy with a unique body in which is incorporated many of Mr. Leopold's own ideas. The total weight of the chassis and body is 4,390 pounds, the body being extremely light, weighing but 785 pounds. The body has a light ash frame and hand-hammered aluminum is used in its construction. The roof is made of seven light ash crosspieces and three slats covered with canvas on top and brown pantasote inside of the car. The removable windows are of light walnut and pantasote is stretched over each frame, there being an oval mica center. Each window fits in two dowels at the top and with a catch at the bottom. When not in use the windows go into a box at the rear of the car and their total thickness is only 5 3/4 inches. The upholstering is golden brown hand-buffed leather

throughout, while all window frames, shutters, glass front, heel boards and trim are of Circassian walnut. Directly back of the front seat is a walnut box, which is detachable and which is used for an ice chest. It contains an ice compartment with room for 3 quarts of liquids, 20 pounds of ice, a sandwich box and a salad box. Also there are compartments for cigars, maps, goggles, etc. The body was built by the Chicago Carriage and Trimming Co.

#### NEW LOZIER MODEL

Announcement of an entirely new creation by the Lozier company is made. The new Lozier will be designated as the Lakewood model, and is styled the torpedo type to distinguish it from the toy tonneau. It is mounted on a low-hung chassis with an extreme inclination of the steering wheel and low seats, and from its resemblance to a torpedo will probably retain this appellation. The dash is hooded in the same manner as the Briarelliff model; but instead of the front seats being open the sides are entirely enclosed, entrance to the driver's and mechanic's seat being gained through doors, making the sides of the body enclosed from the dash to rear, only the shoulders and arms of the occupants of the car being visible from the outside. The tonneau seats are quite low, the same as are the two front seats.

#### MOTOR CAR LITERATURE

The first 1910 catalogue is that of the Packard Motor Car Co., 11 by 8 1/2 size, which contains several full-page reproductions of all the various types of the Packard 30 and 19 models. A comprehensive

description of the models is included, and the Packard truck also receives its share of attention.

Cray Brothers, Cleveland, O., has issued a 128-page catalogue in which is listed and illustrated supplies of all kinds for motor cars.

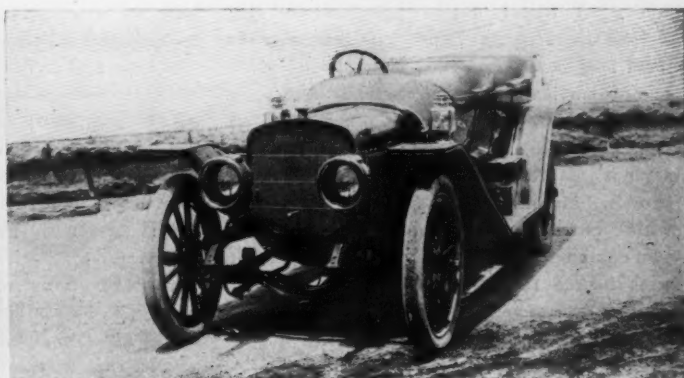
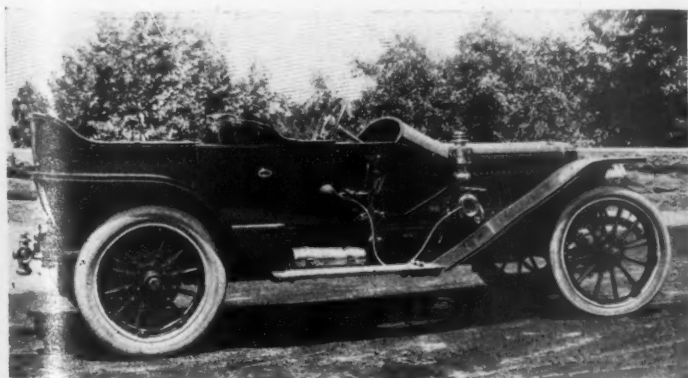
"The Automoblist's Handbook," a booklet issued by Ketchum's garage, Saratoga Springs, N. Y., contains a road map and seventeen route directions in and out of Saratoga Springs.

"Manufacturers' Combined Catalogue for Dealers," issued by the International Sales Co., Chicago, lists and illustrates an extensive line of motor car accessories.

Motorists will be interested in the booklet which is being circulated by the H. H. Franklin Mfg. Co., entitled "Franklin Tourist Book," giving advice on preparing for a tour, rules of the road, how to prevent trouble, on the use of fuel and the proper use of oils, laws and customs, etc. This same company is also circulating a small folder telling of its work in reliability and economy tests.

"Cork, Its Origin and Uses," a cork-colored, paper-covered book issued by the Armstrong Cork Co., Pittsburg, Pa., describes at some length the origin, process and method of manufacture of cork, and the many uses to which it is put. The book is well illustrated.

The Peerless Motor Car Co., Cleveland, O., has taken time by the forelock and issued its 1910 catalog. Eight full-page illustrations of its new models accompany a comprehensive car description and specifications. Its modern New York office building also is illustrated.



TWO VIEWS OF THE NEW LOZIER LAKESIDE MODEL WHICH HAS JUST BEEN PUT ON MARKET

# ELECTRICAL DEVICES USED IN MOTOR CARS

By Thomas J. Fay  
Part XVI, Concluded

WHEN a battery has been in service for a certain length of time to overhaul the same and render it fit for further service is a natural sequence; this detail is not attended by dangers when primary batteries are considered beyond those attending the handling of corrosive chemical compounds and poisonous materials. When reference is had to acids, it is enough to say that in concentrated form they must be handled with care, and in no case is it safe to pour water into acid. The acid should be carefully run into the water at a very slow rate and the whole should be stirred simultaneously in order to diffuse the heat of combination.

## Overhauling Storage Batteries

When storage batteries are to be overhauled it is the batteries that are likely to be damaged rather than that the operator will be endangered, and there are certain rules that should be followed in order that the amount of damage done will be minimized. It is necessary to equip for the purpose, and among other facilities it is important to have a hydrogen generator at hand, in order to be able to burn the joints when they are made. Solder composed of lead and tin cannot be used in making joints for the reason that the joints so made will corrode, and the tin, which is an undesirable impurity in a cell, will dissolve and penetrate the elements by way of the electrolyte. To avoid this the elements are burned, that is to say, instead of soldering the connectors to the elements they are joined by rapidly heating the metal at junctions and the lead of the necks of the elements is allowed to mingle with the lead of the connectors and then to solidify. Joints so made are mechanically secure, impervious to the action of the electrolyte and electrically as good as the prime section of the lead.

## Principle of Hydrogen Generator

Hydrogen when combined with oxygen makes a flame sufficiently hot to melt lead locally, and the burning process as it is applied to battery work becomes a reality. Oxygen is available in the air in sufficient quantity to allow of the use of the hydrogen flame, provided the latter element is available under slight pressure. To obtain hydrogen under slight pressure in sufficient quantity a hydrogen generator is used and is so contrived that the pressure is automatically limited to that due to a few inches of water. Fig. 42 illustrates the principle of construction attending such a generator, cut through the middle, showing an outside shell S, the bottom of which is filled with zinc. From the top a two-compartment container H is inserted, with means for rendering the same tight around the seam at the top. The upper compartment A is filled with dilute sulphuric acid, and by means of the needle valve N the sulphuric acid is allowed to drip into the lower compartment B until it

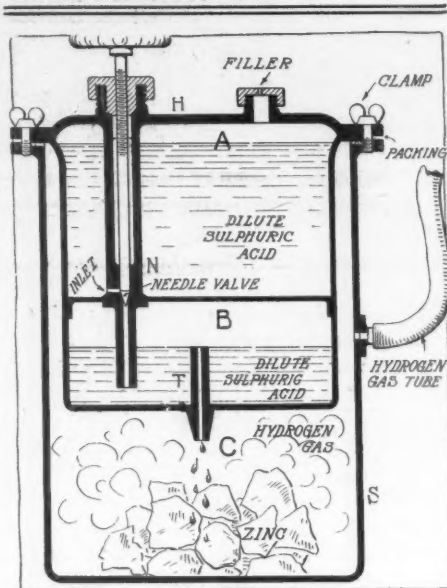


FIG. 42

rises to the top of the connecting tube, above the line of the drip tube T from the upper compartment and passes below. When the sulphuric acid passes down through the tube T and contacts with the zinc in the bottom chemical action is set up with a reaction as follows:



The middle chamber C acts as a seal and when the pressure of hydrogen equals the pressure of the column of dilute sulphuric acid the action terminates because no more sulphuric acid will flow until the hydrogen-gas pressure is decreased, as it will be if the hydrogen is consumed. In practice the process is continuous and automatic, thus enabling the operator to burn the lead joints as rapidly as they can be made up.

Fig. 43 illustrates a form of generator that accords with practice, the principle being the same as that shown in Fig. 42, with the differences in detail as follows: The receptacle A for sulphuric acid may be of any convenient shape but it must be tight. The pipe P leads to the tank B, which is provided with a large hand hole K to use in passing the zinc to the inside and in cleaning out as occasion requires. Sulphuric acid poured into B contacts with the zinc and hydrogen gas is formed. The pressure will be equal to the effective head of the column of sulphuric acid, the excess acid is forced up into the receptacle A, and the formation of gas is interrupted, due to the uncovering of the zinc when the liquid passes up into A. The hydrogen gas passes on to the burner through the filter-safety S. This water trap, acting as a safety, not only scrubs the gas but it prevents air from passing into the generator and in this way safety is assured.

## The Burning Process

Fig. 44 shows details of the process after

the joints are made up, following the work of scraping the necks of the plates and the surfaces of the straps, so that a clean bright metal-to-metal contact will be assured. Under no circumstances will lead run together unless the surfaces are clean and bright; they must not stand for any length of time, after scraping, because a coating of sulphate of lead will form over the scraped surfaces and the process of burning will be defeated.

Among the troubles that ultimately attend batteries in service the following are the most conspicuous:

Hardening of negative elements; local action; buckling of plates; shedding of active material; sulphation; reversal of negative elements; disintegration of grids; protruding active material; deformation of separators; broken jars; incipient short circuits; defective electrical contact; loss of capacity; loss of voltage; corrosion of plates, and needle formations.

## Remedial Action Essential

Hardening of the negative elements will follow if they are exposed to air, as when the electrolyte is allowed to fall below the level of the plates, from any process that will produce overoxidization if the temperature is allowed to increase much above 90 degrees Fahrenheit. When the negative elements are hard, to reduce them back to the normal condition, assuming the process is not too far gone: Remove the elements from the jar, place the negatives in a cell, with dummy positives, and charge until the negatives are corrected, taking care not to charge at a too high rate. High temperature and excess boiling should be avoided. If the negatives are charged in their own cell with the regular positives the positives will be damaged by the excess charging that will be necessary to reduce the negatives. When the negatives are sufficiently charged to correct the evil they may be returned to their own cell,

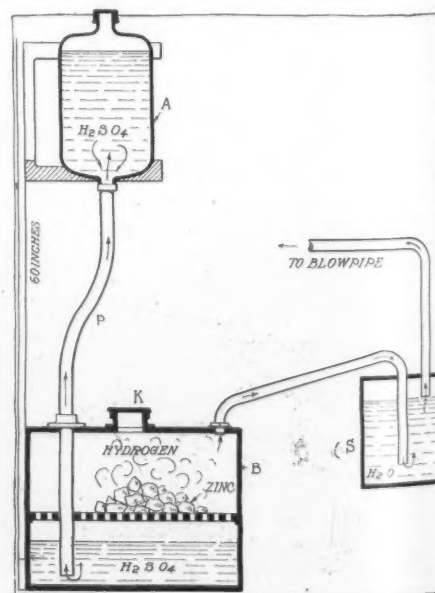


FIG. 43



and when connected up with the positives the cell will be ready to go into service again, if in the meantime the positives are given such attention as their condition would seem to indicate. Local action, following impurities in the electrolyte, will only be prevented as much as it is possible to do so when the electrolyte is removed and pure electrolyte substituted in its stead. This should be done when the cells are fully charged. The electrolyte will hold most of the impurities when the battery is in the fully charged state.

#### Buckling of Battery Plates

Buckling of plates, when batteries are defective in design, rather than in cells of normal characteristics, is a trouble that will follow in any cell if the discharge is allowed to extend below 1.8 volt as indicated by the cadmium test, rather than by the usual potential difference reading across the two sets of elements in the cell. If the rate of discharge is excessive, a condition that is not likely in ignition work, buckling will follow also. Short-circuiting the elements to see if the battery is alive will tend to buckle the plates, due to the heavy discharge, and the uneven rate of discharge over the surfaces of the elements. In defective construction, if the active material is not of the same porosity, thickness, and in the same condition all over the surfaces of the plates, buckling will follow.

Shedding of the active material, to a slight extent, is a normal condition of batteries; and to prevent trouble due to incipient short circuits such shedding is cared for by having a space in the bottom of cells to hold such shedded material. When elements are of inferior design and improperly constructed the active material will shed at a rapid rate, and the user of the battery can do nothing more than demand a new battery to replace the defective one. If charging is done at a too rapid rate the active material will be loosened by the rapidly escaping gas, and even on discharge, if the rate is high, the shedding of active material is likely to follow.

Sulphation, which is a normal expectation during discharge of a battery, introduces serious complications under certain conditions as when the active material is not in intimate contact with the grids thus allowing the electrolyte to get between the grids and the active material, with the result that sulphate, which is a high resistance material, isolates the grids and reduces the efficiency of the cell in two ways; first, by increasing the ohmic losses, and, second, by lowering the chemical activity. Excess sulphate is prone to form when the electrolyte is out of balance, and one of the best ways to abort this action is to keep the electrolyte within the prescribed limits of strength. If sulphate is allowed to form until white crystals show over the surfaces of the plates it is highly improbable that the cells will ever be of sufficient service to warrant continuing

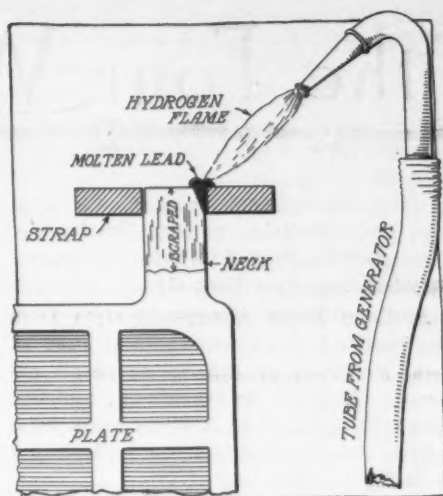


FIG. 44

them in service. The only way to afford relief lies in reducing the growth of sulphate by continuous charging the sick elements in a cell with dummies until the sulphate is reduced. A slow rate for a long time may bring about a reform.

Negative elements to be reversed must be below capacity, or the cells must be discharged to zero and then reversed. In charging it is always necessary to make sure that the connections are made in such a way that current will flow into the battery rather than out of it. Voltmeters in which permanent magnets are used will serve as polarity indicators and with them it is possible to proceed with safety. If a battery is connected up in reverse when it is put on charge instead of being charged it will be discharged and then charged in reverse. While it is discharging it will deliver current to the line.

#### Various Battery Troubles

Disintegration of grids will follow if the impurities are allowed to enter the electrolyte, as iron, etc. Continued charging will also have the effect of reducing the grids to form salts of lead.

Protruding active material, due to expansion and displacement of the same, indicates a lack of binding relation between the grids and the active materials. There is no remedy. Deformation of separators, when they are made of rubber compound, follows when the cells are allowed to heat beyond a certain point. This trouble will be aborted if the cells are charged at a normal rate, and if the temperature is not allowed to increase beyond about 90 degrees Fahrenheit. When wood separators are used they will slowly rot and in time it will be necessary to replace them.

Broken jars will allow the electrolyte to leak out and frequently the fracture is but a minute crack, so that it is well to be on the lookout for just this kind of trouble. If the jars are properly nested and motion between them is prevented they will as a rule serve without breaking.

Incipient short circuits are likely to go unnoticed. They are generally due to detached particles of active material that lodge between the plates, especially in

vehicle and ignition types, owing to the short distance separating the plates, and the use of separators, such as perforated rubber in the absence of wood, which have the virtue of being porous but too close to allow the active material to bridge across the space between plates.

Defective electrical contact is due to corroding of joints that are not made by burning.

Loss of capacity may be traced to such causes as: If the electrolyte is out of balance or below the level of the top of the plate; loss of active material from the grids; sulphate formed on the surfaces of the grids, isolating the active material; lack of porosity of the active material; impurities and sulphate clogging up the pores of the active material; low temperature; high temperature; persistent sulphation, and inter-cell leakage due to electrolyte spilled over the surfaces, especially if jars are in actual contact with each other.

Loss of voltage, as distinguished from loss of capacity, follows in a battery when one or more of the cells are dead or below voltage. If one or more of the cells are reversed they will set up a counter-electromotive force, and the over-all reading of the battery will be reduced accordingly. The remedy is obvious. All the cells should read the same way, and all should have the same difference of potential, respectively.

#### Charging Ignition Batteries

In view of the sulphated condition that attends all batteries that are discharged at a low rate for a long time, as is the case in ignition work, it is necessary to charge at a low rate for a long time in order to reduce the sulphate, which is in persistent form and very difficult to reduce. It will not be enough to correct the strength of the electrolyte once during the charging process for the reason that it will be difficult, if not impossible, to ascertain the condition of the same with any degree of accuracy and the necessity for noting strength two or three times in the act of charging is apparent. When the battery is fully charged, which may take even sixty hours of continuous charging at a low rate, the electrolyte in every cell should stand at full strength, considering a state of full charge, and the color as well as other indications of a full charge should be fully noted. Boiling at a slow rate should be tolerated for several hours, but the temperature should be held at about 90 degrees Fahrenheit during the entire time. If a battery is charged at frequent intervals it will last longer in service, give less trouble in charging and will be more reliable in service. It is well to begin charging directly a battery is taken out of service as any delay after that time will result in a marked deterioration of the cells.

When a car is put out of commission, even for a few weeks, the battery should be given a light discharge and a subsequent charge as often as once a week, until it is again brought back into use.



# From the Four Winds



**Omaha Likes Motors**—Omaha is so well pleased with its new motor patrol that it is seriously considering the purchase of motor fire steamers and hose wagons.

**Has Another Ally**—Another branch of the advisory council of the Automobile Club of Maryland has been formed, the organization in this instance being the Automobile Club of Allegany county. It is composed of fifty enthusiastic motorists of Cumberland. H. H. Amack is president of the club and W. C. Devecmon is secretary.

**Road Scout Completed**—The last of the preliminary scouts for the New York-to-Atlanta endurance run of the fall has been ended and after working through the Tennessee route the scouts have been royally entertained in Atlanta and have settled back to routine work after some strenuous touring. This tour was made by a White steamer, representing the New York Herald and an Oldsmobile, traveling for the Atlanta Journal.

**Helps On Wash Day**—"Let the motor car do the work," is the slogan of Carl Grieve, of Central City, Neb., who owns a light runabout. By exercising his ingenuity, Mr. Grieve is able to transform his machine into a very useful domestic on wash day. The tires are of hard rubber and worn flat, so that by raising the rear of the car and blocking it up, a belt can be passed around one of the tires and connected with the mechanism of the washing machine. After starting the engine he settles down at his ease and witnesses a fine job of washing.

**Cannot Drive Toy Car**—A Hartford boy who possessed a miniature motor car confronted an obstacle in the way of legal restraint a few days ago when he attempted to maneuver his newly-acquired flyer. Unfortunately the juvenile is but 14 years of age and under the state law no one can operate a car unless 16 years of age, and, apparently not even a toy car. The new bill provides for operation of motor vehicles by persons over 18 years of age.

**Richfield Springs Get Stars**—That the first annual hill-climbing contest which Richfield Springs, N. Y., will promote on Saturday, July 31, will be a big one is evidenced by the list of entries already booked for the event. Among these will be a team of Knox cars piloted by William Bourque and Al Denison. A pair of Chalmers-Detroit machines and a Chadwick six with drivers yet to be named will insure keen competition, while the Buick racing stable will be well represented in various events. Efforts are being made to get Ralph de Palma to enter with a Fiat. S. B. Stevens has entered and will drive his Mercedes. The course, which will start at

the Earlington, is now being oiled and put into shape for the contest. Entries can be made with Fred J. Wagner, Thoroughfare building, New York city.

**Portland Made Money**—Receipts from the Portland, Ore., road races of June 12 total \$5,095.55, or \$495.55 above all expenses. Much of the expense incurred this year will not have to be borne again for a similar event, and the club is well pleased with the financial end of it.

**Manufacturer Helps Library**—The gift of a library site and enough money to erect the building, has been made to the city of Auburn, Ind., by Charles Eckhart, president of the Auburn Automobile Co., of that city. The building and ground will be valued at \$22,500. The city first asked Andrew Carnegie to donate the money for the building, but following Mr. Eckhart's offer, the request was withdrawn.

**Travel in Style**—The white wings of Baltimore are right up to date and since the beginning of the present week they have been making trips to and from their work in a motor car. This will be a permanent feature of the street-cleaning department, for the old electric police patrol has been turned over to Street Cleaning Commissioner Wickes for this purpose by the police board. The commissioner will map out a number of routes for the wagon so as to save time in distributing his men.

**Building Course of His Own**—M. F. Hershey, the chocolate king, has decided to build 20 miles of good roads in the sections immediately adjacent to the town of Hershey, in eastern Dauphin county, Pennsylvania. While the magnate will not admit that the idea is to provide a first-class course for motor speeding, those near to him aver that such is his object and that next year will see Harrisburg provided with the main requisite for a long-distance cup race over the new course that is to be built.

**Milwaukeeans Building Roads**—The Milwaukee county board committee on highways has outlined a scheme of highway improvement and asked the board of supervisors for authority to build 6 miles of road at a cost of \$5,000 a mile. The special county road fund now amounts to \$30,000 and all will be used this year. The state highway appropriation will be available as soon as this money has been expended and there will be no cessation of the work. The first work will be to improve Fond du Lac avenue and the old Janesville plank road, two ancient thoroughfares that are now trunk lines into the city of Milwaukee. With the state appropriation, Grand avenue will be extended to the county limits. This is part

of the scheme for a fine boulevard highway from the center of Milwaukee to the westward, ultimately reaching Madison, the state capital, a distance of 85 miles.

**Slow to Register**—The Wisconsin secretary of state reports that only a small percentage of owners has complied with the new registration law, increasing the fee to \$2, at this time. However, penalties will not be exacted until 90 days after the publication of the law, June 19.

**Knight Engine Fuel Economy**—In the recent Scottish trials a 38-horsepower Minerva was equipped with a Knight engine, the result being that the car captured the Scottish cup for the lowest fuel consumption per ton mile, showing 45 ton-miles to the gallon or 25 car-miles, considered a fine performance over the Scottish roads.

**New Racing Body**—The Motor Racing Association has been organized in New York city and has obtained control of the Brighton Beach track, where it is their intention to hold motor car races. C. F. Wyckoff has been elected president, E. R. Hollander vice-president, C. F. Page treasurer and W. C. Allen secretary. Headquarters have been opened at the show rooms of the Cordner Motor Car Co., of 1540 Broadway, and A. B. Cordner, of the latter company is to act as chairman of the racing committee.

**New Idea in Ambulance**—A motor car ambulance has been placed in service in Indianapolis by the A. M. Ragsdale Co., undertakers. It was built by the Premier Motor Mfg. Co., of that city, from a special design, the chassis being similar to the Premier six-cylinder chassis. The distinctive feature of the ambulance is that it is built to resemble a limousine, there being no advertising matter to identify it, except on window curtains, which can be arranged to hide the advertisement. The plan was adopted to eliminate the curious public, which usually gathers around an ambulance.

**Horse-Fly Stops a Car**—A remarkable story of discovery at Columbus, O., is told in a letter sent from there by F. M. Hoblitt, of the American Locomotive Co., who has been making a 3,000-mile business trip in an Alco car. He says: "I have seen one coyote stampede 2,000 steers, a mouse an elephant and a bumble-bee a gang of harvest hands, but I never saw a horse-fly stop a motor car until yesterday. Running between Cleveland and Columbus in this already far-famed Hoblitt Glidden tour, our car came to a dead stop and all mechanical minds were instantly at work. It did not take long to discover that there was no gas going to the engine. Further investigation showed that in some mirac-



ulous way a large horse-fly had been drawn into the auxiliary air intake in such a way as to shut off the air and almost instantly choke the engine to a standstill."

**Wisconsin Registrations**—From January 1 to June 1, 1909, the state of Wisconsin issued 1,426 licenses, this number exceeding by 600 the licenses issued during the same period in 1908. The secretary of state estimates that at this rate a total number of 10,000 licenses will have been issued by January 1, 1910. The total registration now is more than 7,650.

**Connecting Omaha and Tekamah**—The Omaha Automobile Club, of Omaha, Neb., has been notified that all roads between Omaha and Tekamah, Neb., will be dragged and harrowed next week and a good road provided between the two cities. The trip from Omaha to Tekamah is a famous old run and was used in the old bicycle days as a century run from Omaha. Tekamah is only 42 miles from Omaha and the riders had to go beyond Tekamah to make the 100-mile run.

**New Club Paper**—The Automobile Club of Delaware County, Pa., has just issued the first number of its club bulletin, which is to be published spasmodically in the interest of good roads and a square deal for the members of the club and other law-abiding motorists. If the initial spasm is any indication, the little publication is destined to a long life of usefulness, for it is fairly packed with information of value not only to club members, but to motorists generally.

**Law Helps Road Builders**—After discovering a new law under which they could proceed the county commissioners of Franklin county, O., have decided to abandon the plan of transferring funds to provide money for road improvement. The new law provides that the auditor can certify to the commissioners that tax has been levied for a certain purpose and the money is in process of collection. Under this law the commissioners will proceed at once in making the contemplated improvements to cost about \$200,000. This insures much better roads for the fall and winter season in Franklin county.

**Western Iowa Waxes Enthusiastic**—Plans are being perfected by the Council Bluffs Automobile Club for a 3 days' endurance contest for western Iowa motorists early in September. It is proposed to have the motorists of Des Moines, Sioux City, Council Bluffs and smaller towns participate in the big run. The course, according to present plans, is to be from Council Bluffs, Ia., eastward to Des Moines on Saturday, September 4, thence northwest to Sioux City on Sunday and south from Sioux City to Council Bluffs on Monday, Labor Day, September 6. The winner will receive a \$200 prize trophy. The run is to be scored by teams instead of by individuals. The club also is planning a series of races. H. A. Searles has offered a trophy to be known as the Mon-

arch trophy for an endurance race during the series and George Gerner has offered a Gerner trophy for any race the club may select.

**Government Road Opened**—United States Engineer Eugene Ricksecker, of Tacoma, celebrated Independence day by throwing open the government road for travel to Mount Tacoma national park. There is now a splendid thoroughfare from tide-water to Narada falls. The grade for the most part is 4 per cent.

**Old Ferry to Go**—The Lyme bridge bill has now passed both houses of the Connecticut state legislature and awaits the signature of the governor. The new bridge when completed will relegate the old flat-bottomed ferryboat to oblivion, much to the satisfaction of motorists who have been compelled to use the craft. An issue of bonds will provide the necessary funds for construction.

**Motor Carnival at Seattle**—A motor carnival will be held at Seattle August 4 to 7, the features of which will be a parade of four divisions, a hill-climbing contest, a track meet and a 24-hour race. J. A. Hemstreet, who had charge of the Acme car in the ocean-to-ocean race, will manage the affair. The first day of the carnival will be given over to the parade, which will start from Pioneer square and go to the exposition grounds. The second day will be a hill-climbing contest up Queen Anne hill. In the track meet on the third day races will be run at 5, 10, 25, 50 and 100 miles. The 24-hour race will start at 8 o'clock on the night of August 6. Four hours will be deducted to allow for repairs. Each car will be permitted to have two crews.

**State Road Picked**—The Colorado state road commission last week selected what is known as the north road for the state road from Denver, to Golden, provided for by the seventeenth general assembly by an appropriation of \$5,000. The selection of this route was largely due to the offer made by Lakeside to build the ½ mile of the road which will run through that incorporated town, and the money put up by Lakeside and the residents. The residents raised \$9,000 to build the road, the county commissioners of Jefferson county donated \$5,000 and the state \$5,000, making \$19,000 in cash, ½ mile through Lakeside constructed free of cost to the state, and a hard rock for a large part of the route. With this capital to work upon, the governor, the county commissioners of Jefferson county, Mayor Robert W. Speer and State Engineer Comstock, the commission appointed to select the route, expect to construct the finest boulevard in the state. Work on this road will be done by convicts from the state penitentiary, and the work will be commenced as soon as they are available. A petition has been sent to Governor Shafroth asking him to transfer the convicts from the Trinidad road, which will be finished in a few weeks,

to the old Santa Fe trail. The Colorado Pioneers' Association undertook to mark the old road by stones and it wants the governor to help them.

**Omaha Cares for Orphans**—One hundred orphans, inmates of the Benson orphanage at Omaha, were treated to rides Wednesday, July 14, at the hands of Omaha's motorists. Twenty-five cars were utilized to give the youngsters an outing.

**Club Issues Year Book**—The year book of the Automobile Club of Hartford for the season of 1909 and 1910 has just been issued by Secretary A. G. Hinkley and contains a fund of club information such as the constitution and by-laws of the organization, membership list, committees, etc.

**Fine Cadillac Performance**—Five Cadillac cars competed in the Scottish and Irish reliability trials, covering 4,840¼ miles under official observation. The results show that in all this distance only one replacement was made, it being necessary to change a commutator spring on the single-cylinder.

**Race Meet Postponed**—The Motor Car Racing Association of Maryland, has postponed the 24-hour race scheduled for July 16 and 17 on the circular course at Benning, D. C., until September 10 and 11. This action was taken because of the fact that so many persons are away in the mountains or at the seashore at this time of the year, while during September the race promoters would be sure of a larger attendance.

**Improving the Highways**—Under the direction of John Wagner, chairman of the good roads committee of the Racine Automobile Club, of Racine, Wis., an extensive highway improvement campaign has been inaugurated in the territory adjacent to the city of Racine. Mr. Wagner's plan is to assess each owner \$10 for a special fund to be distributed among the highways commissioners to be appointed by the club in each township. At regular intervals the commissioners will go over the principal highways with scraper and roller and remove all obstructions or menaces to travel. The plan has found much favor.

**Gospel Motor Car**—The gospel motor car is now making a tour of the state of Ohio, and is attracting unusual attention in religious circles of the state. It left Cincinnati a little more than a month ago and having visited several cities is now at Springfield. The gospel workers will be out all summer, closing the season at Greenfield, O., the first week in September, during the session of the Methodist Episcopal conference there. T. A. Snyder, a wealthy Cincinnati manufacturer, originated the idea and at his own expense purchased a large car and equipped the outfit, which he and a few friends are now supplying with funds. Miss Anna L. Cartwright, a woman evangelist of Youngstown, is in charge.



# Motor Car Shop Kinks



MANY an engine, especially many an old engine, is unnecessarily noisy because of superfluous clearance between the valve lifters and the valves, and a great part of the noise may be eliminated simply by the expenditure of a little time and care in reducing this clearance to the minimum. Every valve cam, no matter what its shape otherwise may be, is tangential at the first and last portions of the valve's movement. The sooner the valve takes hold of the cam on the lift, and the later it lets go on the descent, the slower will be the movement of the valve at these instants, and the less will be the shock both of the lifter on striking the valve stem and of the valve head on meeting its seat. Fig. 1 shows this clearly. The tangent line A B starts at A, and during the arc D C the rise of the cam amounts only to a minute distance A D. During the following equal angle, however, the lift is three times as great.

It is a common idea that the valve lifters should in all cases be adjusted to open and close the valves at certain crank angles, which usually are arbitrarily assumed, and with few exceptions will be found to be nothing but guesswork. As a matter of fact, it is seldom indeed that the cams of any engine, particularly any engine 2 or more years old, hold the valves open too long if the whole effective angle is utilized. It is quite true that the cams may not be exactly alike, and some may hold their valves open longer than others. Nevertheless, although this results in unequal power in the cylinders, that fact is

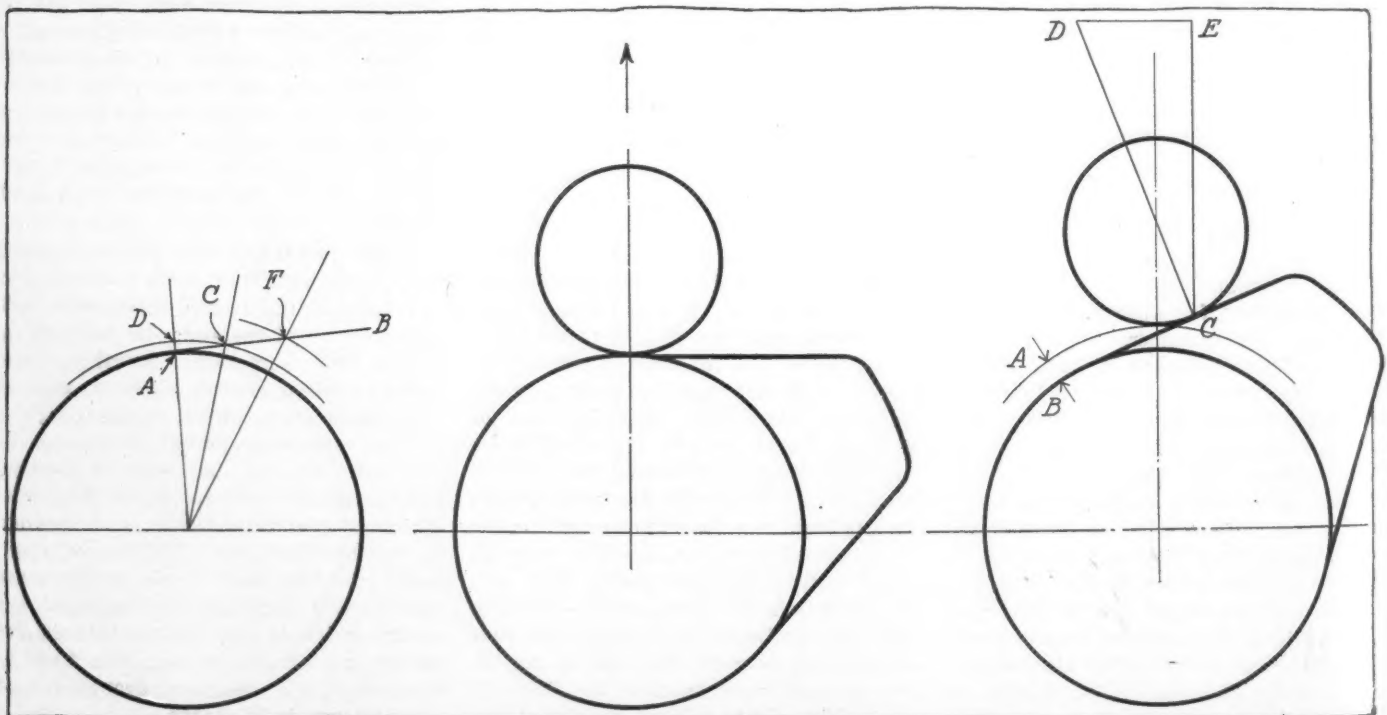
## Reducing Valve Gear Noise

not sufficient to justify what amounts to throttling certain cylinders in order to equalize them down to the less efficient ones. This applies to both the inlet and the exhaust valves. It is, however, possible that advancing or retarding the valves one tooth of the gear may be found advantageous. In ordinary engines, the exhaust valves should not open earlier than 45 degrees' crank angle before the bottom center, and they should not close before the top center, nor more than 20 degrees after the top center. The writer's experience is that 40 degrees above the bottom center and 15 degrees past the top center is about right. The exact figures, however, will depend on the form of the exhaust manifold and the action of the muffler, and no arbitrary rules can be laid down. If the valves are on opposite sides of the cylinders, the openings of the exhaust and inlet valves may overlap as much as 10 degrees on the crank without detriment, and a 5-degree overlap may be allowed even when the valves are close together.

The objection to an excessive clearance is not simply the vertical hammering, but the sidewise pressure imposed on the valve-lifters by the cams, particularly at the instant of opening the exhaust valves. If it were possible to operate the valves with no clearance whatever, and if there were no lost motion, and if the whole mechanism were ideally rigid, the line of

pressure of the cam at the instant could be said to be vertical, and there would be no side thrust till the valve was off its seat and the pressure of the gases on the valve was partly equalized. As the matter actually stands, however, there is a side thrust which is considerably increased by unnecessary clearance, as comparison of Figs. 2 and 3 clearly shows. In Fig. 2 there is no clearance, and the tangent to the line of contact is horizontal. In Fig. 3 there is a clearance, AB. The thrust acts at right angles to the tangent along the line C D, and if C E represents by its length the force required to overcome the pressure on the valve and the force of the spring, there is a horizontal thrust equal to D E. It goes without saying that valve-lifters thus adjusted will wear loose in the guides faster than they should. As the gas pressure on the valve head may amount to 30 or 40 pounds per square inch the instant before the valve is open, there is an evident tendency to wear a hollow in the cam at the precise point where it starts the exhaust valve from its seat. Evidently, moreover, the smaller the clearance, the greater will be the leverage of the cam and the smaller will be its wearing tendency.

The precise amount of minimum clearance is hard to state arbitrarily. The thickness of a business card or about 10-1,000th of an inch is ample allowance for the expansion of valve stems for the average length. Frequently, however, this allowance must be increased, owing to irregularity of the cam profile or irregular



FIGS. 1, 2 AND 3—SHOWING CAUSE OF NOISE AND WEAR OF CAMS AND PUSH-RODS



wear of the contact ends of the valve stem and lifter or of the roller. The cam must, of course, clear the valve throughout its entire idle arc, and it is well not to take the chance of a half turn of the valve, causing it to touch the lifter, owing to the end of the stem not being square. If the roller and pin of the lift show wear, it is safest to renew them, as a small irregularity here has a marked effect on the performance of the engine.

#### Removable Pedal Pads

The accompanying sketches show how the pedal pads on a certain motor car were raised to accommodate the short stature of the feminine member of the partnership by which the car was owned. Unlike those of many more recent cars, the pedals were not adjustable for height, and were 2 or 3 inches too low for the woman in the case to operate with comfort. Since the car had to be driven by either husband or wife without loss of time in changing over, it was necessary to make extensions of the quick-detachable variety. In Fig. 4, the dotted line B C shows where the top of the extension had to come, and Fig. 5 shows how the problem was solved. D is a piece of flat steel about  $\frac{1}{8}$  inch thick, which is cut out in the shape shown with ears E E, F F and G G. The ears E E were each given two bends, as indicated by the dotted lines in the pattern sketch. Ears F and G received one bend each, and G G fitted loosely the sides of the pedal shank. In putting on the extensions ears E were first caught, and a cotter pin pushed through the holes J prevented the lower part from lifting. The upper part I of the extension is a roughened piece similar to D, but without the ears, and connected to D by four pins H whose ends are turned down to fit holes K and similar holes in I. Riveting over the ends completed the extensions, which could be attached or removed in an instant and were perfectly secure. In this case, as a further aid to interchangeability, the two front cushions were made of different heights, one being about an inch higher than the other, and the cushions were exchanged when the pedal pads were removed or attached.

#### Dope for Sprocket Chains

The best lubricant for sprocket chains is a constant puzzle. If oil is used it is absorbed by the dust which settles on the chain. If tallow or other animal grease is employed it is pushed away from the bearing surfaces and the latter get dry. The ideal lubricant would seem to be something between an oil and a grease, too thick to be drawn out by absorption, yet soft enough and clinging enough to stay in the rollers. This mission is approximately fulfilled by a mineral grease, such as non-fluid oil or Keystone grease, which are not affected by moderate changes of temperature, and have the clinging quality which animal greases lack. The makers of these greases, how-

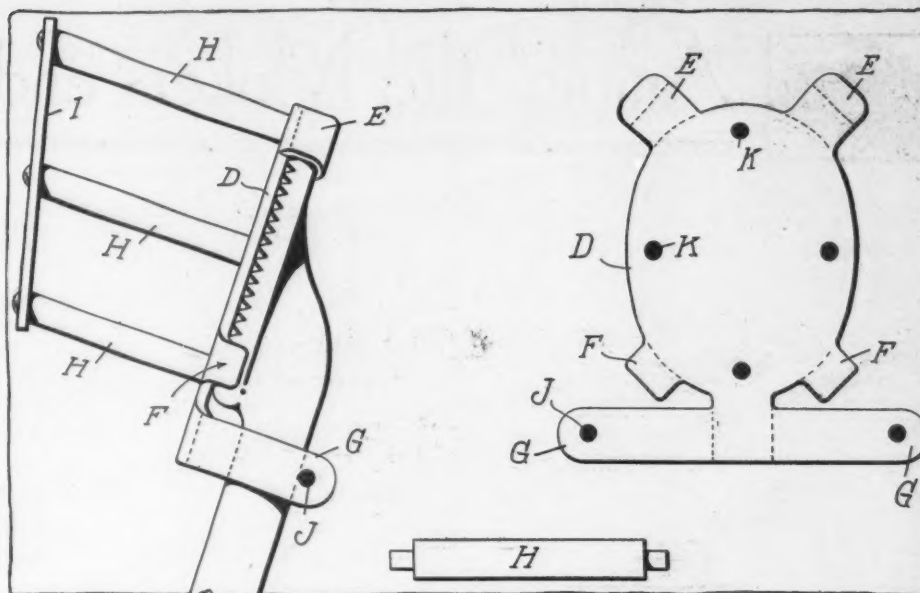


FIG. 5—SHOWING DETAILS OF PEDAL EXTENSION

ever, do not recommend heating them, and they cannot be introduced into the links and rollers of the chains except by rendering them temporarily more fluid than they are desired to be in service. The present writer has evaded the dilemma very successfully by dissolving Keystone grease in gear case oil, in amounts sufficient to produce a viscous fluid at the boiling point, which thickened when cold, and would just barely flow. A fairly liberal quantity of graphite was added, about half a cupful to three quarts of dope, and the chains after cleaning were boiled for half an hour or longer in the mixture to enable it to penetrate thoroughly.

#### Speed of Buffing Wheels

A buffing wheel is a very handy adjunct of the repair shop to brighten up brass work, such as radiators, lamps and horns, which come in for small repairs. It is, however, rather the exception in shops wherein brass work is not a specialty to find the buffing wheels run at the right speed. Usually they are treated like emery wheels, which require a surface speed about half as great as buffs.

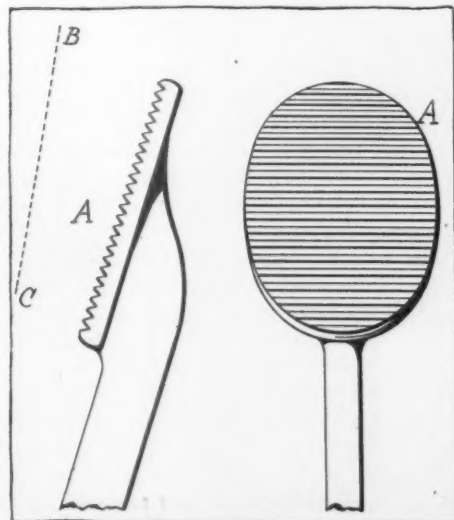


FIG. 4—PEDAL TO BE EXTENDED

Where buffs are used in manufacturing they run at a speed of approximately 3,000 revolutions per minute for a 12-inch wheel, and even 14-inch wheels are run at that speed. When the diameter of the wheel gets below 10 inches 3,000 revolutions per minute is no longer an economical speed, and either the head should be speeded up or the wheel should be discarded for a new one. It is also essential to supply as much tripoli as the operator wants, since it is the tripoli that does the work, and if the wheel is insufficiently charged the cutting action is transferred from the tripoli to the fabric, which immediately goes to pieces.

#### Keep Horn Screen Clean

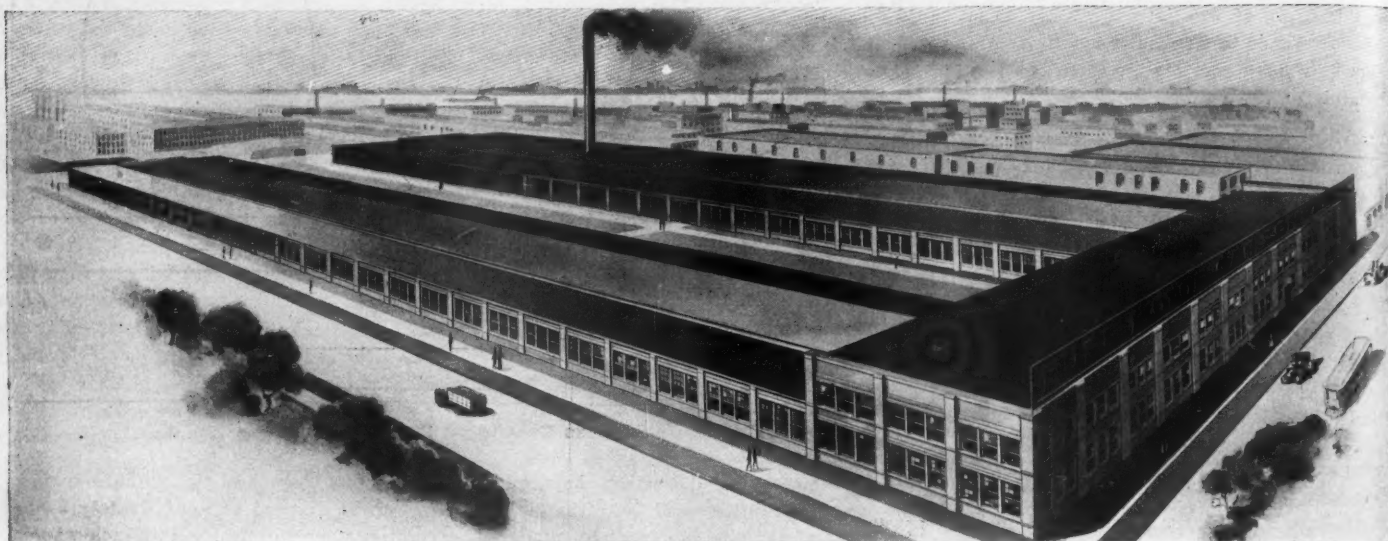
The average garage cleaner thinks he has done his duty when he has polished the horn and the rim of the horn screen. In discharging this duty the edges of the screen are likely to become more or less filled with polishing paste, the acid in which in time corrodes the wires and helps to clog them. If this condition is neglected the clogging may go on to such an extent as to muffle the horn amazingly and lead the owner to suspect that the reed has deteriorated or the flexible tube become leaky. Removing the screen will show at once where the fault lies, and a few minutes' work with water and a tooth brush will restore the original volume of sound.

#### Sticking Radiator Caps Again

The commonest cause of a radiator cap sticking is simply expansion of the threaded ring on which it screws. In other words, it sticks only when hot, and is unscrewed easily when cold. The time to refill the radiator therefore is before rather than at the end of a run. If, however, refilling is necessary when hot, e. g., after a stiff hill-climb, the simplest plan is to cool the top of the radiator and the base of the ring under the cap by pouring water thereon, being careful not to get the water on the cap itself.



# Among the Makers and Dealers



NEW PLANT IN DETROIT WHERE HUPMOBILE WILL BE BUILT BY HUPP MOTOR CO.

**Big Magneto Order**—The Cadillac Motor Car Co. has placed an order for 10,000 Milton magnetos with the Webster Mfg. Co. of Chicago for 1910 cars.

**Jewell Branch in Pittsburg**—The Jewell Motor Car Co., Massillon, O., has leased part of the Banker Brothers Co. block in Baum street, Pittsburg, and will open a branch garage there August 1 with Fred W. Fischer as local manager.

**Building a Big Plant**—The Waukesha Motor Co., of Waukesha, Wis., has awarded contracts for the new \$12,000 plant on St. Paul avenue, and work has commenced. The building will be 88 by 135 feet in size, of brick and steel construction.

**New Garage for Sheboygan**—W. A. Voigt and Albert Maurer, of Sheboygan, Wis., and Fred C. Voigt, of Milwaukee, Wis., have purchased a building site at 816 Niagara avenue, and will erect a large garage. Plans are for a two-story, reinforced concrete building, 60 by 100 feet in size. The location is in the center of the business district, near the largest hotel in the city.

**Iowa Dealers Organize**—The Iowa Automobile Dealers' Association has been organized at Marshalltown, Iowa, with twenty charter members. It is proposed to make the association a state-wide organization and to interest all Iowa dealers in the project. To better trade relations is the expressed object of the association, and in addition the members will work together to secure more prompt shipments from the manufacturers. The officers of the new association, which will be incorporated, are: President, P. B. McClure, Oskaloosa, Ia.; first vice-president, W. E. Sears, Des Moines; second vice-president, M. J. Bannatt, Clinton; secretary and treasurer, C. C. Eldridge, Marshalltown;

directors, H. H. Van Brunt, Council Bluffs; P. C. Peterson, Davenport; R. A. Bennett, Sioux City; A. G. Heath, Fort Dodge; F. A. Creelious, Waterloo.

**Was Winton 1910 Model**—An illustration of the Winton 1910 car published in Motor Age last week was inadvertently labeled a 1909 model, whereas it is of the product being built for next year.

**Is Doolittle Rim Agent**—L. C. Van Bever and H. H. Knepper have just returned from a successful tour through the New England states, and have arranged for a representation for Doolittle rims in New England with the exception of Connecticut, with the Standard Tire and Rubber Co., of which W. P. Cronin is president.

**Hupp Factory Moves**—The Hupp Motor Car Co., of Detroit, is just finishing the removal of its equipment and the installation of new machinery in its new factory at Concord street and Jefferson avenue. The site of the new Hupp building adjoins the first motor car plant built and operated in Detroit—the former Olds works—which was the beginning of Detroit's biggest industry. This plant will be unique in that all the work will be done on the same level, and the building, except the part of it facing Jefferson avenue and where the office will be housed, will be one story high. It is built in the shape of a huge capital U, each of the wings being 350 feet long and 50 feet wide, with the connecting portion 131 feet long and 60 feet wide. This plan is a combination of the newest ideas and of R. C. Hupp's experience and observation of motor car factory construction. It will obviate passing any of the work along from floor to floor. Instead the building of cars will begin at one extreme end and the work will pro-

gress through the building until the cars are completed and ready for shipment at the other end. The capacity of the new factory will be twenty-five cars a day.

**New Fritchle Garage**—The Fritchle Automobile and Battery Co., of Denver, now is in its new garage at 1449 Clarkson street, Denver, which it is striving to make a model of its kind.

**Halladay Changes**—L. P. Halladay, formerly general manager of the Streator Motor Car Co., of Streator, Ill., has become manager of the motor car department of the Staver Carriage Co.

**Butcher in for Himself**—Harold Butcher has severed his connection with the Timken Roller Bearing Axle Co., for which he was western representative, and is in for himself with the Western Sales Co., which handles five lines on an exclusive basis, the company's office being in the Stevens building, Detroit.

**Now Handling Reo**—The C. L. Taylor Motor Car Co., of Kansas City, Mo., has been appointed general distributor of the Reo for western Missouri and eastern Kansas, having given up the Regal. The company has leased the building at 1612 Grand avenue, formerly occupied by E. P. Moriarity & Co. It took possession Monday.

**Kinsey Company Incorporated**—The Kinsey Mfg. Co., of Toledo, has been incorporated with an authorized capital stock of \$100,000 by Isaac Kinsey, Homer V. A. Hawk, Willard Corbin, Wellington C. Smith and John V. Nandeman. The company is moving its plant from Dayton to Toledo, and will engage in the manufacture of parts and articles in sheet and metal castings. A three-story addition to the Pope plant is nearly completed and ready for the occupancy of the concern.



J. N. Willys, president of the Overland company, is one of the stockholders. About 500 people will be employed by the company.

**Benz Agency in Atlanta**—The Benz Auto Import Co. of America announces that it has placed the agency for the state of Georgia with the Georgia Motor Car Co., 68-70 Edgewood avenue, Atlanta. G. W. Hanson will give his personal attention to marketing the Benz product in this territory.

**New Michigan Enterprise**—The Oldberg Mfg. Co., of Detroit, recently incorporated with a capital stock of \$10,000, will manufacture mufflers and their accessories for the motor car, marine and stationary engine trade. V. Oldberg is president, H. P. Wayman vice-president and general manager and A. C. Born secretary and treasurer.

**Tire Plant for Columbus**—The Ohio Tire Co., of Columbus, O., with a capital stock of \$10,000, has been incorporated under Ohio laws by Thomas Midgley, B. G. Huntington, Louis Fink, John A. Pfeifer and Martin E. Murphy. Mr. Midgley is general manager of the Midgley Mfg. Co. The new company will locate a factory in Columbus.

**Corkhill With Apperson**—C. J. Corkhill, for the past 8 years western sales manager for the Olds Motor Works, recently resigned that position and has joined the Apperson Brothers Automobile Co., of Kokomo, Ind. Mr. Corkhill will have charge of the sales of Apperson cars in the territory west of the Mississippi river, making his headquarters in Omaha.

**New Rambler Test**—Hotel clerks in many out-of-the-way cities in Wisconsin have been startled during the last few days by questions asked by several parties driving stripped machines. The parties always inquired for the worst route from city to city and finally convinced the clerks that they were not joking. The men were testers from Thomas B. Jeffery & Co. in Kenosha, Wis., who are making unusual trial runs with 1910 models



CHICAGO BRANCH OF THE RENAULT

through the state. This is the first time the Rambler manufacturers have given new cars such long and hard endurance tests.

**Weed Secures Injunction**—The Weed Chain Tire Grip Co. announces that it has secured an injunction in the federal court of the district of western New York restraining the International Automobile League from selling Weed chain tire grips or parts thereof at lower prices than those marked on the bags containing the grips, or upon the Weed price list.

**Will Handle Cole Output**—J. J. Cole, president of the recently-organized Cole Motor Car Co., Indianapolis, has announced that the entire product of the company will be handled by the Henderson Motor Sales Co. At the active head of the sales company will be Charles P. Henderson, well-known in carriage circles by reason of his long connection with the Henderson-Hull Co., of Atlanta, Ga. The president of the company will be Mr. Cole,

while H. C. Lathrop, until recently in the agricultural machinery business in Indianapolis, will be secretary and treasurer.

**Sanger Takes on Olds**—The Edgar F. Sanger Co., 52-54 Biddle street, Milwaukee, Wis., has taken the agency for the Oldsmobile in addition to the Maxwell line.

**Moore a White Manager**—W. H. Moore has been appointed manager of the Pittsburgh branch of the White Co. He will have all of western Pennsylvania for his territory.

**Glide's Magneto Equipment**—The Glide car in the Glidden tour, driven by A. Y. Bartholomew, is fitted with an Eisemann high-tension magneto, not a Remy, as stated in the last issue of Motor Age.

**New Omaha Concern**—The Nebraska Buick Motor Co. will be organized in Omaha soon to handle the product of the Buick Motor Car Co. This is the line now handled by the Bergers' Automobile Co., which will in the future confine itself to the E-M-F. The incorporators of the new firm are R. H. Collins, now general manager of the Buick company at Kansas City; Charles Stewart, of Madison, Neb., and J. H. Sidles, of the Sidles Automobile Co., of Lincoln.

**Badger Company Officials**—The Badger Automobile Co., of Columbus, Wis., was recently organized with \$50,000 paid-up capital, and \$100,000 capital stock, has elected the following officers: President, A. M. Bellack; vice-president, C. Kurth; secretary, George Holtz; treasurer, J. R. Wheeler; directors, Messrs. Bellack, Kurth, Holtz and William C. Leitsch. Mr. Arbogast, designer of the Badger car, which will be manufactured by the company, has been elected general manager of the company. The company plans to manufacture 250 cars for 1910 delivery.



ELECTRIC GARAGE OF THE FRITCHLE AUTOMOBILE AND BATTERY CO., DENVER



# The Motor Car Repair Shop



## Carbon Deposit and Overheating

ONE of the most fruitful sources of trouble in internal combustion motors is that of the carbon deposit. If the cylinders get too much oil or if oil of a heavy or inferior grade is used, a portion of it will work up past the pistons, where it will be evaporated or consumed by the intense heat, leaving a deposit of carbon. This may be augmented by too rich a mixture, which serves to deposit film upon film of carbon on the inside and top of the compression chamber and on the head of the piston. The films thus formed will in time commence to scale, and the projections fused by the heat of the explosions will serve to prematurely ignite the charge. The symptoms are back-firing and knocking in the cylinders—as if the spark were too far advanced. An almost infallible symptom of excessive carbon deposit in the cylinders is the motor showing plenty of power at high car speeds, but deficient in hill-climbing on high gear. At slow engine speeds the incandescent carbon projections serve to pre-ignite the charge, thereby reducing the power of the motor. The cure is to take off the cylinder head and scrape off the carbon deposit from the top of the piston and inside of the cylinder head. Carbon also will form on the porcelain portion of the spark plugs, thereby furnishing a circuit which the high tension current may follow, rather than jump the gap between the points of the plug. Usually only a part of the current will pass by way of the carbon film, still leaving a weak spark at the points, which in open air, when testing plugs, may seem strong enough. This causes intermittent firing. The symptoms are similar to a poor contact commutator. This condition is difficult to detect, for the reason that when the plug is subjected to the usual test of removing from the cylinder and closing the electrical circuit, the spark is seen to jump free and fat between the sparking points. This is because electrical energy which is sufficient to jump between two points  $\frac{1}{2}$ -inch apart in the open air will jump less than  $\frac{1}{16}$ -inch in the explosion chamber under 60 pounds compression. The causes of overheating in motors may be summed up as follows: Poor oil, insufficient oil, bad mixture, slow spark, obstructed water pipe, low water and valves out of time.

## Removing and Replacing a Magneto

When about to replace or remove a magneto it is well to see that all separable parts are properly marked, and if not, mark them. This may be done with a center punch, cold chisel, letters or numerals. In Fig. 1 is shown the guide marks generally used in connection with a high-tension magneto of a four-cylinder motor. The center punch marks C; on the Oldham

coupling such as is usually employed on the magneto shaft between the magneto and its driving gear, serve as a guide in replacing the magneto. All that is necessary in replacing a high-tension magneto so marked on a four-cylinder, four-cycle motor is to see that the marks are directly opposite each other; but in two or six-cylinder motors, where the crankshaft and the armature of the magneto do not run at the same speed, care must be taken either not to move the crankshaft while the magneto is off or to check up the timing before it is replaced. In the same illustration is shown the method of marking the timing gears. These marks are made with a cold chisel and are generally present in up-to-date construction. When a new gear is fitted to a magneto, or to the crank or camshafts for that matter, it should be marked in the same place relative to the keyway as the old gear, and both marks A and B should line up properly when the gears are in mesh.

## Ignition Timing

In timing the ignition of a motor one should base his operations on one particular cylinder, and this should be the most accessible one. Let it be assumed that a mechanic is required to test or correct the timing of a four-cylinder, four-cycle vertical engine. He would have to know the order in which the cylinders fired, and how to find the firing center of No. 1 cylinder. As the operation of the valves on most motors may be readily seen, the firing center and the order in which the cylinders fire can be easily learned from the action of either set. For instance, if on turning the motor over slowly the intake valve of No. 1 cylinder opens and closes, then that of No. 3 cylinder, and following No. 3 that of No. 4 operates, the mechanic need go no further for he knows that the engine fires 1-3-4-2. The exhaust valves, of course, may be used in the same way. However, if the valves are entirely enclosed, as on the Winton cars, open the

priming or relief cocks, and beginning with cylinder No. 1 note the order in which the air is forced out through the cocks. There are two rules for finding which cylinder is on its firing center, that are based on the action of the valves; these are as follows: When an exhaust valve is open the following cylinder is about to fire. When an intake valve is open the previous cylinder is about to fire. One very simple method of finding the firing center of a cylinder is to open the priming cocks of all the cylinders but one, turn the motor over slowly till compression is encountered, open the cock, insert a stiff wire till it rests on the piston head, then carefully bring the piston to the top of its stroke. The cylinder will then be on its firing center. When the firing center, and the order in which the cylinders fire are known, all that remains to be done in timing an engine is to set the revolving segment of the commutator or distributor so that a spark will occur in the proper cylinder when the spark control lever is advanced about one-third or, with the spark control lever fully retarded, and the piston about  $\frac{1}{2}$  to 1 inch down on the explosion stroke, set the segment so that it just begins to make contact.

## Looking Over the Car

At this season of the year a car is often brought into the repair shop with instructions to give it a general looking over and oil it up. More practical instructions could hardly be given. This means: Fill up the grease cups on the outer bearings of the rear axle; see that the pins of the brake shoes are well-greased and free; fill the grease cups on the clutch collar and see that bearings are well-filled and tight; forget not the cups on the water pump and commutator spindle, or those on the steering-gear case. Drain all the oil from the crankcase of the motor, flush with kerosene, then fill to the required amount with the best grade of gasoline engine oil. Before leaving the motor, squirt a gun full of oil into the timing gearcase, apply a few drops of oil to the push rods, carburetor and ignition control levers, and, in fact, all moving parts in connection therewith. Oil the universal joints between the clutch and transmission with oil and grease. Give a few drops of oil to the three oiling places on the magneto. Oil all running gear and operation levers, including those under the footboard, the change-gear sleeve of the transmission, the brake rod and lever connections, the torsion and radius rod bearings, the spring leaves, shackles and all steering connections. Oil the starting crank and examine and grease all wheel bearings and watch for lost motion.

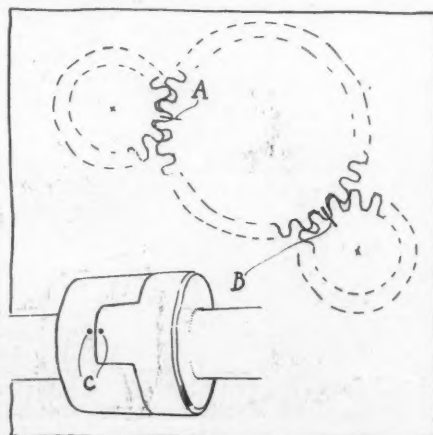


FIG. 1



# HISTORY OF TRUFFAULT SHOCK ABSORBER

By E. V. Hartford

IN the fall of 1897 I went to live in Paris. Being interested in mechanics, I had followed the growth of the motor industry, then an infant itself, with a great deal of interest. Diverting from the shock absorber history for a moment at this point, I might say that in the fall of 1898 the marquis de Dion, who perhaps is responsible as much as any other man for the present motor car, sent me to America with the object of trying to obtain sufficient funds for the establishment of a branch of the house of de Dion in America. My mission failed entirely, and was a great disappointment to me as well as a loss to the industry in the United States.

In the spring of 1899 I went to Versailles to witness a 100-kilometer motor bicycle race. At this time more interest was taken in this than in the motor car, as they were faster. The race was won by Marcellin, beating Baras, who up to that time had been well established as the motor tricycle king. When I looked at Marcellin's tricycle, a Darracq, equipped with a 12-horsepower Buchet two-cylinder motor, I noticed that the fork was entirely different from the ordinary one. Marcellin, whom I knew, as I did all of the racers, informed me that it was la fourche Truffault—the Truffault spring fork—and was a great invention. I then turned to Baras and inquired of him how Marcellin had come to beat him and he replied: "It is that la fourche Truffault. In my last race, which was partly over cobblestones, I used it, but as this race was over a road like a billiard table, I thought I would do better without it, but will never race without it again." Baras' tricycle was identical with Marcellin's with the exception of the Truffault fork.

The following day I looked up Truffault and found him in a humble little shop located near the Porte Maillot, with his two sons working with their own hands, and no other help, building the Truffault forks. Truffault was a man of about 60 years of age, of the pure type of the inventor, creating one thing and then bending his energies on something else, not sticking to one idea until he had marketed it and established it on a firm financial basis. He was a splendid type of a better class Frenchman, working with his sons, who were more like intimate friends in his shop during the day, and living an ideal life with his family after working hours. From his inventions he should have been a very wealthy man and long since retired from active business, but instead the manual labor he was even then still performing had cramped and bent his fingers like an old mechanic who had spent years at the bench. Truffault actually invented the hollow bicycle rim which first made the light safety bicycle possible. He turned his invention over to a large manufacturer of bicycles who promised him a royalty of

10 francs on every bicycle manufactured. Truffault, with that inventive mind bent more on improvements and new inventions, failed to take the necessary legal steps to protect himself, and the manufacturer, putting his conscience behind him, became a multi-millionaire, and it is said the royalties which were actually Truffault's were never paid, being in themselves sufficient to have made him a wealthy man.

I had the Truffault fork applied to my own  $2\frac{1}{4}$ -horsepower de Dion tricycle with the most gratifying results. Truffault and myself became fast friends, and worked in unison on the problem of a shock absorber for the various types of suspensions as were being used on motor cars. Truffault had a complicated idea which involved a somewhat radical change in the construction of the motor car, and I suggested the present simple three-point suspension which has been used with such great success to the present day.

In the fall of 1900 I went back to the United States and tried to interest someone in the invention. I bought a 6-horsepower Oldsmobile and sent it over to Truffault to experiment with, and this car had the honor of being the first motor car which was fully equipped with a set of our shock absorbers. Before this, however, I had demonstrated principally with a tricycle, but could get no one to take the matter seriously enough to give me any encouragement. Even some of the best motor car engineers of the day could not understand why we wanted to brake the action of the spring with friction, and thought we should rather put ball bearings all around to let the spring give its maximum oscillation.

One exception was Thomas A. Edison, to whom I took my tricycle at his experimental plant in Orange, N. J., and rode up and down over a series of 150-pound castings about 8 inches in height. Mr. Edison seemed to be very much impressed, sending for me after the demonstration, and it certainly looked as if he intended taking it up. I waited for days to hear from him in vain. I spent hours endeavoring to interview and interest motor car engineers and executive officers of the motor car companies then started, but no one seemed to think the matter was worth taking up much of their attention, and had I been dependent for my living on the exploiting of the shock absorber for the first 2 years, I should have been in dire want. A little later I met personally a New York manager of a large motor car company, and in

discussing the motor car business I mentioned my shock absorber, and through him obtained permission to make a demonstration at their factory. As this seemed to be the turning point of the career of the shock absorber, I considered the circumstances of sufficient importance to go to the expense of bringing Truffault over from France. He remained at the factory for 2 weeks, it being necessary to change the very stiff springs with which the car was equipped to a more supple set. When the job was finished and the shock absorbers applied, the factory's testing force gave them such a test that few shock absorbers have received since, and Mr. Truffault assured me that he never again cared to go through the same experience. In his own words, "Instead of sticking to highways, they attempted to drive the car across country." However, the shock absorbers made a very successful demonstration, and a short time afterward the company made me an offer of \$1,000 for the patent. This was scarcely equal to the amount that this one demonstration had cost me, it being necessary to pay and take care of Truffault for the 2 weeks he was over here, besides paying for his time and his passage both ways while on the water.

The motor car industry in France at that time was much further advanced than in the United States, and shortly after Mr. Truffault returned to Paris he closed negotiations with Peugeot to exploit the shock absorber in France. Peugeot put them on his own cars and sold a few sets besides. The increase, however, in the marketing of the device was slow until the late Leon Thery became interested and decided to equip his Richard Brasier racer which he was at that time preparing for the Gordon Bennett race in June. Thery's sweeping victory over his opponents of four different nationalities has now become part of motor history. With less horsepower than any other of the competing cars, he triumphed over them easily, and on every side the question was asked what was the cause. The problem was easily solved. It was the shock absorber, which economized the power by keeping the wheels on the ground, saved the tires and the whole mechanism of the car, besides which Thery was able to pass over all road obstructions without cutting off his power, while the others were obliged to slow down materially.

We placed an initial order for twenty-five sets with the Garvin machine Co., and after this was duplicated twice we opened a small shop on Hudson street in October, 1903. By May of the following year we were running night and day striving to supply the demand, and conditions have rarely changed since that time, although we are now manufacturing 50,000 shock absorbers yearly.





# Brief Business Announcements



**Detroit, Mich.**—F. H. Smith has been appointed state agent for the Firestone Tire Co.

**Southampton, L. I.**—A large garage is being erected on Hill street for Charles R. Fitz.

**Brooklyn, N. Y.**—The Empire garage, of 449 Madison street, has taken the agency for the Velie.

**Trenton, N. J.**—F. C. L. Martin, who is the proprietor of a garage on East State street, has been appointed state agent for the Hupmobile.

**Birmingham, Ala.**—The Swatzell garage Co. has recently opened at Twenty-first street and Avenue B. F. N. Kennedy is the manager of the company.

**New York**—Plans have been drawn for the erection of a six-story garage to be erected at 2 West Ninetieth street for the Carnegie Hill Livery and Motor Co.

**Edgewater, Ill.**—The Edgewater garage, which has recently been incorporated with a capital stock of \$1,500, is to conduct a motor livery and garage. C. C. Collins is the only incorporator.

**San Francisco, Cal.**—The Eastern Auto Brokerage Co. has opened salesrooms at Market and Beal streets, and is to deal in both new and second-hand cars. L. Q. Haven is the manager of the concern.

**Harrisburg, Pa.**—The Pullman Motor Car Co., of York, has been incorporated with a capital stock of \$10,000. Another new concern is the Parke Avenue Garage Co., of Meadville, which has a capital stock of \$5,000.

**Long Beach, L. I.**—A garage is in course of erection on the Long Beach boulevard, just opposite the Old Inn. The new building is to be 100 by 80 feet. Supplies of all kinds will be handled and it is to have a fully-equipped repair shop.

**Philadelphia, Pa.**—William C. Longstreth, of the Longstreth Motor Car Co., who has been acting as agent for the Maxwell car, has severed his connection with that company and has secured the agency for a medium-priced car and soon expects to add a well-known high-priced car.

**Detroit, Mich.**—A new company has been organized to be known as the Auto Parts Co., and has located its headquarters at St. Antoine and the Michigan Central railway crossing. A. L. Austin, who was formerly connected with the Northern Automobile Co., and more recently manager of the Northern department of the E-M-F company, and A. O. Dunk are the prime movers in the new enterprise, which has purchased from the E-M-F company all parts, drawings, patterns, jigs and special tools for making replacement parts

of Wayne and Northern cars, and will devote its particular attention to repairing cars of these two makes.

**Birmingham, Ala.**—C. C. Nixon, agent for the Cadillac, has removed to his new quarters on South Twentieth street.

**Cleveland, O.**—The Beyer Automobile Co., the local representative for the Cadillac, has removed to 5708 Euclid avenue.

**New York**—The Coates-Goshen Automobile Co. has established headquarters at 1912 Broadway under the management of George W. Floyd.

**Wilmington, Del.**—Extensive alterations are to be made to the Pennsylvania garage at Pennsylvania avenue and Clayton street. The company is ready to rent cars.

**Indianapolis, Ind.**—John S. Lazarus has opened a garage at Twenty-second and Illinois streets to be known as the Meridian Place garage. Roy Lazarus is manager.

**Detroit, Mich.**—The Griswold Motor and Body Co. is the latest concern to locate in this city. The company has taken over the factory at Commonwealth avenue and the railroad, and is to manufacture motor car bodies. Though it is to start with but twenty-five men, it is expected to increase the force to more than 200 before the winter. H. F. Marsh is president; M. Griswold, vice-president;



**Hornell, N. Y.**—De Schraum-Hornell Motor Co., capital stock \$150,000, to manufacture motor cars, bicycles, motor boats, etc. Incorporators, W. A. De Schram, H. S. Hopkins and W. C. Paul.

**Elkhart, Ind.**—Crow Motor Car Co., capital stock \$50,000, to manufacture motor cars. Incorporators, E. C. Crow, F. A. Howe and Martin E. Crow.

**Jersey City, N. J.**—Maxwell-Briscoe-Philadelphia Co., capital stock \$2,000. Incorporators, S. A. Anderson, J. R. Turner and H. O. Coughlan.

**Paterson, N. J.**—Metz Automobile Co., capital stock \$5,000. Incorporators, J. M. P. Ward, S. F. Holden and P. J. McGinnis.

**Buffalo, N. Y.**—Auto Safety Specialty Co., capital stock \$100,000. Incorporators, M. M. Richardson, J. S. Tucker, C. B. Fish, L. M. Slider and H. Alsworth.

**Syracuse, N. Y.**—Central City Rubber Co., capital stock \$50,000, to manufacture rubber goods, bicycles, motor cars, boats, etc. Incorporators, D. A. Gould, J. R. Graham and G. H. Lloyd.

**Orange, Mass.**—Grout Automobile Co., capital stock \$150,000, to take over the business of the Grout Brothers Automobile Co. Walter J. Gould is the president of this new concern, E. S. Hall, treasurer, and G. E. Dexter, secretary.

**Trenton, N. J.**—Adams Garage Co., capital stock \$25,000, to manufacture motor cars and operate a garage. Incorporators, W. Eldridge, C. E. Wilson and C. F. Adams.

**Chicago**—Auto Parts Co., capital stock \$50,000, to engage in the general manufacturing business. F. W. Hartsburg, of Aurora, is named as one of the incorporators.

treasurer, A. F. Marsh; secretary and general manager, Louis Smith, and Elmer E. Day, superintendent.

**Trenton, N. J.**—Frank Palmer has purchased the Leader garage and assumed control on July 1.

**Utica, N. Y.**—Wagoner's new fireproof garage is now open for business at 12 West street. It has a capacity for twenty cars.

**Kansas City, Mo.**—Frank Tate, formerly manager at St. Louis for the Goodrich Tire Co., is now manager at St. Louis for the Maxwell-Briscoe company.

**Joplin, Mo.**—Work has been progressing on the new Cooley garage on Fourth street and the building is now almost completed and will soon be opened up for business.

**New Haven, Conn.**—The Mayo Radiator Co. has almost completed its new plant at Hamden and expects to start it in operation about August 1. The new factory has five times the capacity of the present plant, which will still be continued after the opening of the new building.

**Springfield, O.**—Permission has been granted to Charles L. Bauer, receiver of the Oscar Lear Automobile Co., to erect an addition to the plant at a cost of \$10,000, doubling its capacity. Work is to be commenced at once and Mr. Bauer has been authorized to borrow any sum needed for the work.

**Poughkeepsie, N. Y.**—While it has been reported that a deal has been concluded between the chamber of commerce and the Fiat Automobile Co. for the location of this concern in this city, according to H. T. Hoag, secretary of the chamber of commerce, this statement is unauthorized, as the terms have not yet been settled.

**Reading, Pa.**—The Berks County Automobile Traffic Co. was recently organized to run a motor bus service between this city and Bernville, a section in which the same will be greatly appreciated, as there are no railroad or trolley connections. William Diember is president, J. M. Endy vice-president and C. J. Becker secretary and treasurer.

**Trenton, N. J.**—The Trenton Rubber Mfg. Co. has been authorized to change its name to the Thermoid Rubber Co., and will continue to manufacture rubber goods, motor rubber accessories, tires, as well as a special brake lining, to be known as Thermoid. The company suffered from a fire recently, but it destroyed only the old part of the plant, leaving the more modern section intact. Orders have been placed, however, for new machinery and work is to be commenced at once on the erection of a new concrete structure.